H.R. 1633, THE FARM DUST REGULATION PREVENTION ACT OF 2011

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND POWER

OF THE

COMMITTEE ON ENERGY AND COMMERCE

HOUSE OF REPRESENTATIVES

ONE HUNDRED TWELFTH CONGRESS

FIRST SESSION

OCTOBER 25, 2011

Serial No. 112–99

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H.R. 1633, THE FARM DUST REGULATION PREVENTION ACT OF 2011

TUESDAY, OCTOBER 25, 2011

House of Representatives,
Subcommittee on Energy and Power,
Committee on Energy and Commerce,
Washington, DC.

The subcommittee met, pursuant to call, at 10:06 a.m., in room 2322 of the Rayburn House Office Building, Hon. Ed Whitfield (chairman of the subcommittee) presiding.

Members present: Representatives Whitfield, Sullivan, Shimkus, Walden, Terry, Burgess, Bilbray, Scalise, McMorris Rodgers, Olson, McKinley, Gardner, Pompeo, Griffith, Barton, Upton (ex officio), Rush, Markey, and Waxman (ex officio).

Staff present: Allison Busbee, Legislative Clerk; Cory Hicks, Policy Coordinator, Energy and Power; Heidi King, Chief Economist; Ben Lieberman, Counsel, Energy and Power; Mary Neumayr, Senior Energy Counsel; Alison Cassady, Democratic Senior Professional Staff Member; Kelley Greenman, Democrat Legislative Associate; Caitlin Haberman, Democratic Policy Analyst; and Alexandra Teitz, Democrat Senior Counsel, Energy and Environment.

OPENING STATEMENT OF HON. ED WHITFIELD, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF KENTUCKY

Mr. Whitfield. This hearing will come to order.

Today we will discuss H.R. 1633, the Farm Dust Regulation Prevention Act of 2011. In most respects, this hearing will be similar to many of the others our subcommittee has held this year. As you know, we have jurisdiction over EPA's Clean Air Act regulations, and we have an obligation to the American people to ensure that new regulations do not impose burdensome costs or obstruct job creation, particularly at a time when our unemployment is high, our economy is struggling and uncertainty is widespread.

EPA's unprecedented wave of stringent and inflexible regulations pose a serious threat to the economy, on job creation, in our opinion, which is why we have held an unprecedented number of hearings on the plethora of regulations issued by EPA. The only difference between today's hearing and most of the others is the target of the EPA regulation at issue. Many of the previous hearings dealt with rules most directly impacting manufacturing and energy production. Today, we discuss EPA's particulate matter standards and their potential impact on family farms and small businesses in rural America.

EPA is in the process of revising its National Ambient Air Quality Standards for particulate matter. This includes PM_{10}, which is coarse particulate matter, also known as dust. Although EPA has said it will not propose changes to its existing dust standard, there are several reasons for uncertainty about the outcome of EPA's ongoing review. EPA has discussed further regulation of farm dust since 1996. Most of us believe that the current PM_{10} standard of 150 micrograms per cubic meter is sufficient and should not be changed, especially given the absence of evidence that farm dust poses a health threat.

In April 2011, EPA issued a policy assessment that recommends this standard either be unchanged or lowered to 65 to 85 micrograms per cubic meter. The assessment also recommends a change in the way compliance is measured. Any changes to the current standard would almost certainly force States and localities to impose additional restraints on farming and other operations in rural America in order to comply.

It is possible that EPA will ultimately retain the current PM_{10} standard in its pending review, but it should be noted that the last time EPA considered revising its standard for PM_{10} in 2006, the final version did not adopt an exemption for agricultural dust that had been on the table at an earlier stage.

[The prepared statement of Mr. Whitfield follows:]

Opening Statement of the Honorable Ed Whitfield
Subcommittee on Energy and Power
H.R. 1633, the Farm Dust Regulation Prevention Act of 2011
October 25, 2011
(As Prepared for Delivery)

Today we will discuss H.R. 1633, the Farm Dust Regulation Prevention Act of 2011. In most respects, this hearing will be similar to many of the others our subcommittee has held this year. We have jurisdiction over EPA's Clean Air Act regulations, and we have an obligation to the American people to ensure that any new measures do not impose unnecessary costs or destroy jobs, particularly at a time when our unemployment is high and our economy is still struggling.

Unfortunately, EPA's unprecedented wave of stringent and inflexible regulations pose a serious threat to the economy, which is why we have been very busy holding hearings on one sweeping and costly new rule after another.

The only difference between today's hearing and most of the others is the target of the EPA regulation at issue. Many of the previous hearings dealt with rules most directly impacting manufacturing and energy production. Today, we discuss EPA's particulate matter standards and their potential impact on family farms and small businesses in rural America.

EPA is in the process of revising its National Ambient Air Quality Standards for particulate matter. This includes "PM10," which is coarse particulate matter, also known as dust. In other words, dust is on EPA's regulatory agenda.

Although EPA has said it will not propose changes to its existing dust standard, there are several reasons for uncertainty about the outcome of EPA's ongoing review, since EPA has discussed further regulation of farm dust since 1996. As it is, the current PM10 standard of 150 micrograms per cubic meter is stringent, especially given the absence of evidence that farm dust poses a health threat.

In April 2011, EPA issued a Policy Assessment that recommends this standard either be unchanged or lowered to 65 to 85 micrograms per cubic meter. The assessment also recommends a change in the way compliance is measured. Any changes to the current standard would almost certainly force states and localities to impose costly constraints on farming and other operations in rural America order to comply.

It is possible that EPA will ultimately retain the current PM10 standard in its pending review. But it should be noted that the last time EPA considered revising its standard for PM10, in 2006, the final version did not adopt an exemption for agricultural dust that had been on the table at an earlier stage.

Rural America faces considerable uncertainty at this time over the farm dust issue. Not surprisingly, the American Farm Bureau Federation considers the threat of farm dust regulations to be a priority issue, and organizations like the National Cattlemen's Beef Association, Western Business Roundtable, National Federation of Independent Business, and U.S. Chamber of Commerce agree. Few are satisfied with EPA's promises that the agency won't hurt farmers, ranchers, and rural agriculture industries.

In light of these legitimate concerns, the bipartisan Farm Dust Regulation Prevention Act of 2011 has been introduced. HR 1633 addresses regulatory uncertainty by ensuring that EPA's current standard will not be revised during the current rulemaking process.

HR 1633 also provides additional regulatory certainty by exempting "nuisance dust" from EPA regulation where it is already subject to regulation under State, tribal, or local law. At the same time, the bill preserves EPA's authority to regulate in appropriate circumstances where it is justified by the science and the economics.

###

[H.R. 1633 follows:]

I

112TH CONGRESS
1ST SESSION

H. R. 1633

To establish a temporary prohibition against revising any national ambient air quality standard applicable to coarse particulate matter, to limit Federal regulation of nuisance dust in areas in which such dust is regulated under State, tribal, or local law, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

APRIL 15, 2011

Mrs. NOEM (for herself, Mr. HURT, Mr. BOSWELL, and Mr. KISSELL) introduced the following bill; which was referred to the Committee on Energy and Commerce

---

A BILL

To establish a temporary prohibition against revising any national ambient air quality standard applicable to coarse particulate matter, to limit Federal regulation of nuisance dust in areas in which such dust is regulated under State, tribal, or local law, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Farm Dust Regulation Prevention Act of 2011".

SEC. 2. TEMPORARY PROHIBITION AGAINST REVISING ANY NATIONAL AMBIENT AIR QUALITY STANDARD APPLICABLE TO COARSE PARTICULATE MATTER.

Before the date that is one year after the date of the enactment of this Act, the Administrator of the Environmental Protection Agency may not propose, finalize, implement, or enforce any regulation revising the national primary ambient air quality standard or the national secondary ambient air quality standard applicable to particulate matter with an aerodynamic diameter greater than 2.5 micrometers under section 109 of the Clean Air Act (42 U.S.C. 7409).

SEC. 3. NUISANCE DUST.

Part A of title I of the Clean Air Act (42 U.S.C. 7401 et seq.) is amended by adding at the end the following:

"SEC. 132. REGULATION OF NUISANCE DUST PRIMARILY BY STATE, TRIBAL, AND LOCAL GOVERNMENTS.

"(a) IN GENERAL.—Except as provided in subsection (b), this Act does not apply to, and references in this Act to particulate matter are deemed to exclude, nuisance dust.

"(b) EXCEPTION.—Subsection (a) does not apply with respect to any geographic area in which nuisance dust is not regulated under State, tribal, or local law insofar as the Administrator finds that—

"(1) nuisance dust (or any subcategory of nuisance dust) causes substantial adverse public health and welfare effects at ambient concentrations; and

"(2) the benefits of applying standards and other requirements of this Act to nuisance dust (or such subcategory of nuisance dust) outweigh the costs (including local and regional economic and employment impacts) of applying such standards and other requirements to nuisance dust (or such subcategory).

"(c) DEFINITION.—In this section, the term 'nuisance dust' means particulate matter—

"(1) generated from natural sources, unpaved roads, agricultural activities, earth moving, or other activities typically conducted in rural areas; or

"(2) consisting primarily of soil, other natural or biological materials, windblown dust, or some combination thereof.".

○

Mr. WHITFIELD. At this time I would like to recognize the gentleman from Kansas, Mr. Pompeo, who is a sponsor, I believe, of this legislation, for 1 minute.

OPENING STATEMENT OF HON. MIKE POMPEO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF KANSAS

Mr. POMPEO. Thank you, Mr. Chairman. Thank you for holding this hearing on H.R. 1633.

You know, I represent an agricultural State and my district has lots of production agriculture. It is part of who we are. The issues that these folks face are like a lot of other small businesses—crushing regulations and tax burdens, but some have a very different flavor like this one.

The issue we are talking about today, the effort to regulate farm dust as a particulate pollutant, is one of the most concerning and potentially most burdensome regulations coming from Washington, D.C., in my 10 months here so far. Now, the EPA's recent announcement that it currently has no intention of imposing new regulations on dust sounds to me like a purely political and likely temporary decision and frankly doesn't give our farmers in Kansas or across the country the certainty they need. The fact remains that EPA staff has suggested tightening this regulation, and that tightening of the regulation would include farm dust.

Like many other sectors in our economy, we need long-term planning. We need the ability for farmers to know what they can and can't do. That is why I am proud to be a cosponsor of the Farm Dust Regulation Prevention Act, and I am pleased to have Congresswoman Noem and Congressman Hurt here this morning to testify about it. Thank you both for being here.

With that, I yield back my time.

Mr. WHITFIELD. Thank you very much, and I will yield back the balance of my time as well, and I recognize Mr. Rush for 5 minutes for his opening statement.

OPENING STATEMENT OF HON. BOBBY L. RUSH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. RUSH. I want to thank you, Mr. Chairman, and I also want to thank all the distinguished witnesses who will be here at today's hearing and testifying.

Mr. Chairman, we are here to discuss the Farm Dust Regulation Prevention Act of 2011, even though last week EPA made the decision that it would not propose any changes to the current standard of 10 PM or 10 micrometers for coarse particulate matter. The basis of today's hearing is H.R. 1633, the bill introduced by Representative Kristi Noem of South Dakota, who we are pleased to welcome to the subcommittee for her testimony today.

H.R. 1633 would bar EPA from revising its rules for coarse particulates for 1 year. It would also create a permanent exemption for "nuisance" dust from farms and country roads. I look forward to hearing from Assistant Administrator of the Office of Air and Radiation, Gina McCarthy, as well as other stakeholders testifying to better understand the impact that this proposed legislation will have on the Clean Air Act as well as on public health.

In particular, I have concerns over section 3 of H.R. 1633, which states that the Clean Air Act does not apply to, again, I will quote, "nuisance" dust and would eliminate EPA's authority under the Clean Air Act to regulate anything that constitutes nuisance dust except narrowly defined circumstances. As currently drafted, nuisance dust is defined as particulate matter that is, one, generated from natural sources, unpaved roads, agricultural activities, earthmoving or other activities typically conducted in rural areas, or, two, consisting primarily of soil, other natural or biological materials or wind-blown dust. However, the phrase "other activities typically conducted in rural areas" is much too broad and could potentially include industrial activities that are commonly located outside of urban areas that will be exempt from the Clean Air Act regulation including power plants, ethanol refineries, mines and smelters, and pulp and paper mills. Section 3 raises serious concerns over whether EPA could continue to implement fine and coarse particle pollution programs or whether the EPA could ever adopt or implement revised fine or coarse particle standards.

However, H.R. 1633 takes certain types of particulate matter out of the entire Clean Air Act altogether. This bill could potentially forever prohibit EPA from regulating mercury from coal-fired power plants based on the argument that mercury is emitted as particulate matter from coal-fired power plants and burning coal to generate electricity is an activity typically occurring in rural areas. Additionally, as written, section 3 is not limited to stationary sources so H.R. 1633 calls into question EPA's ability to set tailpipe emission standards for new vehicles or engines to limit their fine particulate pollution as well as the ability to enforce existing particulate standards for new vehicles or engines.

So I think it is important, Mr. Chairman, to clarify the bill's language to avoid unintended consequences to the overall Clean Air Act.

Mr. Chairman, I look forward to hearing from all of the panelists on the merits and necessity of H.R. 1633, and with that, I yield back the balance of my time.

Mr. WHITFIELD. Thank you, Mr. Rush.

At this time I would recognize the full committee chairman, Mr. Upton of Michigan, for 5 minutes.

OPENING STATEMENT OF HON. FRED UPTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Mr. UPTON. Well, thank you, Mr. Chairman.

Today's hearing looks at a source of major concern to the ag sector and rural America, which is EPA's regulation of coarse particulate matter, otherwise known as dust.

H.R. 1633, the Farm Dust Regulation Prevention Act of 2011, provides relief from this regulatory threat, and I welcome two of the cosponsors of this bipartisan legislation, Kristi Noem of South Dakota and Robert Hurt of Virginia, who are here today.

The very last thing that our struggling economy needs is new costs and regulatory burdens on farmers and small businesses across rural America. They already face indirect consequences from EPA's costly regulatory agenda, and now they are rightfully concerned about the threat of direct regulation of their operations.

The EPA recently announced that it plans to propose retaining the existing standard for coarse particulate matter, and I appreciate those assurances. But like the stakeholders that we will hear from today, I am not at all satisfied with this step for the simple reason that regulatory uncertainty will remain.

EPA's proposal could change throughout the review process. The ag community's concerns may not be fully addressed. And even if the final standard contains no changes, it is always subject to court challenge. For these reasons, EPA's insistence that it does not plan to change the rule is far from a guarantee that such a change would never come to pass.

In the face of this ongoing regulatory uncertainty, this legislation makes good sense. The bill is targeted. It prevents EPA from setting a new coarse particulate matter standard for 1 year, and it also makes clear that State, tribal, and local governments have authority to regulate so-called nuisance dust common across rural America. The State and local emphasis is appropriate for dust, which is a local issue.

The bill gives EPA authority to regulate nuisance dust in the absence of State or local action, and after both costs and benefits are taken into account. That is common sense and it protects the interests of our vital rural economy.

I commend our colleagues for putting together their legislation on the table. If EPA is serious that it does not intend to regulate farm dust, it should embrace this legislation.

I yield to the gentleman from Texas, Mr. Barton.

[The prepared statement of Mr. Upton follows:]

Opening Statement of the Honorable Fred Upton
Subcommittee on Energy and Power
H.R. 1633, the Farm Dust Regulation Prevention Act of 2011
October 25, 2011
(As Prepared for Delivery)

Today's hearing looks at a source of major concern to the agriculture sector and rural America, which is EPA's regulation of coarse particulate matter, otherwise known as dust. H.R 1633, the "Farm Dust Regulation Prevention Act of 2011," provides relief from this regulatory threat. I welcome two of the co-sponsors of this bipartisan legislation, Kristi Noem of South Dakota and Robert Hurt of Virginia, here today.

The last thing our struggling economy needs is new costs and regulatory burdens on farmers and small businesses in rural America. They already face indirect consequences from EPA's costly regulatory agenda, and now they are rightfully concerned about the threat of direct regulation of their operations.

The EPA recently announced that it plans to propose retaining the existing standard for coarse particulate matter, and I do appreciate those assurances. But like the stakeholders we will hear from today, I am not satisfied with this step for the simple reason that regulatory uncertainty will remain.

EPA's proposal could change throughout the review process. The agriculture community's concerns may not be fully addressed. And even if the final standard contains no changes, it is always subject to court challenge. For these reasons, EPA's insistence that it does not plan to change the rule is far from a guarantee that such a change would never come to pass.

In the face of this ongoing regulatory uncertainty, H.R. 1633 makes good sense. This bill is targeted. It prevents EPA from setting a new coarse particulate matter standard for one year, and also makes clear that state, tribal, and local governments have authority to regulate so-called nuisance dust common in rural America. The state and local emphasis is appropriate for dust, which is a local issue. The bill gives EPA authority to regulate nuisance dust in the absence of state or local action and after both costs and benefits are taken into account. This is a common-sense approach that protects the interests of our vital rural economy, and I commend our colleagues for putting their ideas on the table. If EPA is serious that it does not intend to regulate farm dust, it should embrace this legislation.

###

OPENING STATEMENT OF HON. JOE BARTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. BARTON. Well, thank you, Congresswoman Noem and Congressman Hurt for introducing this and being here. We are beginning to have some dust storms like we had back in the 1930s. We had a very bad one in Lubbock, Texas, last week. There are differences of opinion as to the cause of the storms but it appears that we are in a cycle where the weather conditions are such that we are going to have dryer weather and a little bit warmer temperatures and so we are going to have dust storms.

EPA back in 2006 suggested that we shouldn't regulate farm dust. I wish the EPA would dust that proposal off and institute it instead of even thinking about regulating farm dust. As the chairman just said, this legislation is preemptive in nature and I would hope that we can move it very expeditiously. We don't want to have a re-creation of the 1930s, and because of farm practices and some of the dam projects that have been constructed, we shouldn't, but we also don't want to overreact and regulate something that God himself or herself can't regulate.

So with that, I would yield the balance of the time to Mr. Olson of Texas.

OPENING STATEMENT OF HON. PETE OLSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. OLSON. I thank my colleague from Texas.

Mr. Chairman, I thank you for holding this hearing on H.R. 1633, the Farm Dust Regulation and Prevention Act, of which I am a proud cosponsor.

This hearing is critically important to my home State of Texas. Texas has been battling and unprecedented drought. In my hometown of Sugar Land, we are almost 2 feet behind our annual rainfall. In addition, wildfires have burned 3.6 million Texas acres. Texas farmers and ranchers have been hit particularly hard by the drought and the fires. And to think that the EPA is attempting to regulate farm dust now or in the future is simply out of touch with reality. This move would impose devastating, unjustified and burdensome regulations on farmers and ranchers already struggling in this economy to provide food for an ever-growing population.

Mr. Chairman, as you know, farmers and ranchers are the backbone of America. We must give them the tools and certainty to plan for the future so they can succeed.

I welcome all of our witnesses here today, particularly my colleagues from South Dakota and Virginia. I look forward to your testimony. I yield back.

Mr. WHITFIELD. Thank you very much.

At this time I recognize the ranking member of the full committee, Mr. Waxman of California, for 5 minutes.

OPENING STATEMENT OF HON. HENRY A. WAXMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. WAXMAN. Thank you very much, Mr. Chairman.

Today's hearing considers yet another bill to allow more air pollution, more asthma and more heart attacks, and once again, it is a bait and switch. The bill's sponsors say the legislation is narrowly targeted to help farmers. In fact, the bill is drafted broadly and has sweeping anti-environment effects.

We are going to hear today that we must pass H.R. 1633 to stop EPA from regulating farming. This isn't just nonsense. It is pure fantasy. EPA does not regulate farming practices to reduce dust and has expressed no intention of doing so in the future. EPA has set standards for the levels of coarse particulate matter in the ambient air because there is scientific evidence that this pollution causes serious health effects. Coarse particulate matter, or PM_{10}, is produced by uncontrolled burning of coal and oil, construction and demolition activities, mining, and unpaved roads, as well as farm activities. Once EPA sets the standards for ambient levels of air pollution, it is up to the States and localities to determine how to meet them. It is the States and localities, not EPA, that decide which sources must reduce pollution and by how much.

EPA set the current PM_{10} standards in 1987, during the Reagan administration. As required by the Clean Air Act, EPA has recently reviewed the science supporting those standards. Based on that review, the Administrator recently announced that she intends to propose making no change to the Reagan-era PM_{10} standards. Now we are being told that we need to pass this bill because EPA could change its mind and do something the agency has said it has no intention of doing.

If we adopt this standard for legislation, there is no end to the bad ideas we could legislate. Should we pass a law saying the United States cannot invade Canada? Or one preventing the government from outlawing apple pie?

We are facing real and serious problems that are happening right now. Millions of Americans are out of work; our economy is stalling; fires, floods and droughts are afflicting our Nation. We need to spend our time addressing these real challenges, not squandering it on imaginary problems.

But even though this bill stops something that won't happen anyway, that doesn't mean the bill has no effect. H.R. 1633 is so broadly worded, it could invalidate EPA's existing standards for both fine and coarse particulates. This would have a devastating effect on clean air requirements and public health.

The biggest problem is in section 3, which is not limited to farm activities, rural areas, ambient air quality standards or coarse particulate matter. It says the Clean Air Act does not apply to anything that meets the bill's definition of "nuisance dust," unless a narrow exception applies, and the definition of nuisance dust is sweeping. It includes "windblown dust," which is undefined and not limited to rural areas, and it includes any particulate matter "generated from activities typically conducted in rural areas."

Well, mining is typically conducted in rural areas, and mining operations have huge equipment that can generate large quantities of particulate air pollution. Seventy percent of the Nation's power plants are located in rural areas. The particulate matter generated by power plants includes not only fine and coarse particulate matter, but also particles of mercury and lead and acid particles that form from nitrogen oxides and sulfur dioxides. Children in rural areas typically take the bus to school, and diesel buses generate particulate pollution. Under this bill, EPA could have no authority to regulate any of this pollution.

Now, the bill's sponsors will argue that they don't intend to exempt mines, power plants or school buses from regulation under the Clean Air Act. But as we have seen with so many other bills this Congress, the bill language doesn't match the stated intent. It is the legislative language that matters, and the language could result in a massive increase in dangerous air pollution.

This year, the subcommittee has reported bills to allow more carbon pollution, more air pollution from offshore drilling, more air pollution from power plants, more air pollution from industrial boilers and incinerators, and more air pollution from cement kilns. Today's bill is more of the same. Americans want their kids to breathe clean and healthy air, not another bill to let polluters off the hook.

Thank you, Mr. Chairman. I yield back my time.

Mr. WHITFIELD. Thank you, and at this time I would like to recognize our members on the first panel, Congresswoman Kristi Noem from South Dakota and Congressman Robert Hurt of Virginia, primary sponsors of this legislation, and we genuinely appreciate your being here with us today, and I will recognize each of you for 5 minutes for your opening statement, and Congresswoman Noem, we will begin with you.

STATEMENTS OF HON. KRISTI L. NOEM, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF SOUTH DAKOTA; AND HON. ROBERT HURT, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF VIRGINIA

STATEMENT OF HON. KRISTI L. NOEM

Mrs. NOEM. Sounds great. Thank you, Mr. Chairman and the ranking member, who is not with us right now, but the rest of the committee members, I appreciate you for having this hearing today and for letting us bring forward H.R. 1633, the Farm Dust Regulation Prevention Act of 2011.

I introduced this commonsense bill on April 15th of this year with my colleagues, Representative Robert Hurt, Larry Kissell and Leonard Boswell, because of the regulatory uncertainty that is facing rural America.

We certainly have challenges in front of us. My bill is a bipartisan approach to ending the EPA's regulation of farm dust in rural America while still maintaining the protections of the Clean Air Act to the public health and welfare. It is not a Republican and it is not a Democrat issue. There is broad bipartisan support with over 100 colleagues on both sides of the aisle sponsoring this bill. And the committee will see in the record that there is also over 100 agriculture- and research-based organizations who have written in support of the bill as well.

As this committee knows, there is growing concern that excess regulations are hampering economic growth and job creation across the country. In my home state of South Dakota, this is a huge concern for farmers and for ranchers and small business owners who are struggling to stay afloat in an already stressed economy. One of the most overwhelming concerns that I hear about from farmers every day and ranchers back home is the overbearing regulations coming out of the EPA, including the regulation of farm dust. Their concern is certainly not unwarranted.

Under the Clean Air Act, the EPA is responsible for setting the National Ambient Air Quality Standards for certain pollutants. This includes particulate matter, which is broken down into both fine and coarse particulate matter, commonly known as dust. The Administrator of the EPA, Lisa Jackson, must set the National Ambient Air Quality Standards that States must meet or be designated as nonattainment areas. The goal of these standards is to protect the public from harmful pollutants like industrial soot and car emissions common in urban areas, which I certainly support. The EPA measures the amount of particulate matter, or dust, in the air through monitoring devices that are placed throughout the country. At least every 5 years, the Administrator must review those standards and decide if they want to keep the current standard, or potentially adopt a more stringent standard. As this committee is aware, the EPA is currently in the process and in the midst of another review.

Under current law, the EPA's standards include all kinds of dust, including dust generated from ag activities and the dust that is typical in rural America. This type of dust is naturally occurring and includes soil, windblown dust or dust that comes off of dirt roads. I call it farm dust. This is completely different than the type of dust typical in urban areas which has been shown to have adverse health effects.

My legislation specifically focuses on rural dust. It allows the standard to apply unchanged in urban areas. Farm dust is a fact of life in rural America and, unlike urban dust, has not been shown to have a significant health concern. Including farm dust in the National Ambient Air Quality Standards regulations causes great concern and uncertainty for farmers and other resource-based industries in rural America.

I would like to clear up the myth that EPA currently does not regulate farm dust. Farmers and ranchers are already subject to the standard for dust in nonattainment areas like Arizona. There are people in Arizona that certainly know the impact that this has on businesses. It can cost some producers in that State over $1,000 a day to comply with dust standards.

On September 17, 2011, a Des Moines Register story tells the story of Kevin Rogers, who is going to testify here later today and tell his personal story. He is a farmer from outside of Phoenix, Arizona. If the wind is blowing too much, he has to park his tractors, he has to park his combines so that he doesn't kick up too much dust. As a lifelong farmer and rancher myself, I certainly understand the impact this can have when you have a job to get done and you have a business to run. And as Kevin puts it, "It is a difficult thing when the government is in the middle of every single thing that we are doing." We need to put an end to regulation of farm dust and prevent its expansion into the future.

Regulation of farm dust is a problem today and will be more of an issue if the EPA continues to have opportunities to make more stringent standards into the future. The inclusion of farm dust in the EPA's National Ambient Air Quality Standards will continue to be a problem until legislation is enacted to ensure that farm dust is treated differently. EPA is well aware that it cannot under current law differentiate between dust coming from rural areas or urban areas, and while officials in the EPA continue to say that they have no intention of regulating farm dust, the EPA does regulate farm dust and has no plan to exempt naturally occurring farm dust from their regulations.

This bill certainly provides a solution. It gives us the ability to differentiate between naturally occurring rural dust and that that is typically occurring in urban areas, and also, what it does is, it provides immediate relief for farmers in rural areas by preventing any changes to the current standards for 1 year. Secondly, it provides flexibility for States, localities and tribes to regulate farm dust and nuisance dust themselves.

I certainly appreciate the opportunity to testify before you today, and I will certainly stick around and answer any questions that the committee may have for me.

[The prepared statement of Mrs. Noem follows:]

Testimony of Congresswoman Kristi Noem
Before the Energy and Commerce Committee's Energy and Power Subcommittee
October 25, 2011

Thank you Mr. Chairman, Ranking Member, and Members of the Committee. I appreciate the opportunity to testify before the Committee today in support of H.R. 1633, the Farm Dust Regulation Prevention Act of 2011. I introduced this common sense bill on April 15th of this year with my colleagues Representatives Robert Hurt, Leonard Boswell, and Larry Kissell because of the regulatory uncertainty facing rural America. My bill is a bipartisan approach to ending the Environmental Protection Agency's (EPA) regulation of farm dust in rural America, while still maintaining the protections of the Clean Air Act to the public's health and welfare. This is not a Republican or Democratic issue. There is broad bipartisan support in both the House and Senate for this bill. Over 100 of my colleagues from both sides of the aisle have signed on as cosponsors and, as the Committee will see in the record, more than 100 agriculture and resource- based organizations have written in support of this bill.

Background on regulations

As this Committee knows, there is a growing concern that excess regulations are hampering economic growth and job creation across the country. In my home state of South Dakota, this is a huge concern for farmers, ranchers, and small business owners who are struggling to stay afloat in an already stressed economy. One of the most overwhelming concerns I hear about from farmers and ranchers back home is the overbearing regulations coming out of the EPA, including the regulation of farm dust. Their concern is not unwarranted.

Under the Clean Air Act, the EPA is responsible for setting the National Ambient Air Quality Standards (NAAQS) for certain pollutants. This includes particulate matter, which is broken down into both fine and coarse particulate matter, commonly known as dust. The Administrator of the EPA, Lisa Jackson, must set the NAAQS that states must meet or be designated as "nonattainment" areas. Specific sources must also meet the standard at their property line, or will be subject to a fine. The goal of these standards is to protect the public from harmful pollutants like industrial soot and car emissions common in urban areas, which I support. The EPA measures the amount of particulate matter, or dust, in the air through monitoring devices placed throughout the country. At least every five years, the Administrator must review the standards and decide if they want to keep the current standard, or potentially adopt a more stringent standard. As this Committee is aware, the EPA is currently in the midst of a review.

Under current law, the EPA's standards include all types of dust, including dust generated from agricultural activities and the dust that is typical of rural areas. This type of dust is naturally occurring and includes soil, windblown dust, and dust coming from dirt roads. I call it farm dust. This is completely different than the type of dust typical in urban areas which has been shown to have adverse health effects. I want to be clear that we are not talking about areas where there may be health concerns related to particulate matter. My legislation specifically focuses on rural dust and allows the standard to apply unchanged to urban areas. Farm dust is a fact of life in rural America and, unlike urban dust, has not been shown to be of a significant health concern. Including farm dust in the NAAQS regulations causes great concern and uncertainty for farmers and other resource based industries in rural America.

Impact of current regulations

I'd like to clear up the myth that EPA currently does NOT regulate farm dust. Farmers and ranchers that are already subject to the standard for dust in "nonattainment" areas like Arizona know its impact on businesses. In Arizona, it can cost some producers over $1,000 per day to comply with dust standards. A September 17th, 2011 article from the Des Moines Register tells the story of Kevin Rogers, a farmer outside of Phoenix, Arizona. If the wind is blowing too much, he must park his tractors and combines for the day so he doesn't kick up dust. As a lifelong farmer and rancher, I know what kind of impact this can have when you have a job to do and a business to run. As Rogers put it, "It's a difficult thing when the government is in the middle of everything we're doing". We need to put an end to regulation of farm dust and prevent its expansion in the future.

Future expansion of the issue

Regulation of farm dust is a problem today and will only cause more of an issue as the EPA continues to have opportunities to make more stringent standards in the future. EPA's own policy assessment (Policy Assessment for the Review of the Particulate Matter National Ambient Air Quality Standards) from April of this year includes a recommendation to revise the current standard for Coarse Particulate Matter (PM_{10}) to a much stricter level, which would put numerous rural communities across the country into "nonattainment" status subjecting more farmers and ranchers to fines. While the EPA has since said they are "prepared to propose to keep the current standard", it does nothing to exclude farm dust from the regulations or provide certainty to rural America to stop more stringent standards in the future.

The inclusion of farm dust in the EPA's NAAQS will continue to be a problem until legislation is enacted to ensure that farm dust is treated differently. Assistant Administrator Gina McCarthy stated in a letter I received on May 10, 2011 that the NAAQS "are not focused on any specific category of sources or any particular activity (including activities related to agriculture and rural roads)." In other words, the EPA is well aware that it cannot, under current law, differentiate between dust coming from rural areas or urban areas. While officials in the EPA continue to say that they have no intention of regulating "farm dust", based on their correspondence and current law, the EPA DOES regulate farm dust and has no plan to exempt naturally occurring farm dust from their regulations.

This bill provides a solution

H.R. 1633 provides the EPA with that ability because it differentiates between naturally occurring rural dust and that typical of urban areas. According to the EPA's May 10th letter, they "remain committed to common sense approaches to improving air quality across the country without placing undue burden on agricultural and rural communities". If the EPA truly believes that statement to be true, then the EPA should support this bill. Here is why:

a) First, it provides immediate relief to farmers and rural areas by preventing any changes to the current dust standard for one year from date of enactment.

b) Secondly, it provides flexibility for states, localities, and tribes to regulate farm dust, or "nuisance dust". Nuisance dust is defined in the bill to exclude the type of dust typical of rural areas (such as unpaved roads and dust resulting from agricultural activities) from the National Ambient Air Quality Standards (NAAQS) regulation targeted at harmful air pollutants. If the state, tribal, or local government chooses to regulate nuisance dust, these regulations would supersede the federal standard. If there are no local regulations in place, the EPA must find that the specific type of dust causes adverse health effects and that the benefits of applying the EPA's standard to that area outweigh the costs to the local communities, including economic and employment impacts, before they can enforce the regulations.

This legislation is necessary because despite numerous opportunities, the EPA continues to treat farm dust and urban dust the same. In 2006, the EPA proposed to exempt agriculture dust from the NAAQs standards. But in the end, the EPA pulled that exemption in the final rule which left rural America in uncertainty. Our farmers and ranchers deserve a final, definitive answer and this legislation would provide that.

This is a bipartisan, rural issue with lots of support

The regulation of farm dust is not a partisan issue. It is a rural issue. We cannot continue to burden our farmers and ranchers with a "one size fits all" approach to regulation. The organizations writing in support of this legislation represent thousands of farmers across America who understand the effects of over burdensome regulation. The Chairman of the House Agriculture Committee, Congressman Frank Lucas, along with all of the Chairmen of the Agriculture Subcommittees are cosponsors of this bill. While the EPA might not understand how their regulations impact rural America, we certainly do.

Regulatory uncertainty harms rural America. As the EPA officials try to assure us that they aren't trying to harm rural America, the facts tell a different story. The EPA says they have no plans to further regulate farm dust, but those words are empty promises until backed up by real action. If Administrator Lisa Jackson is serious about bringing regulatory certainty to farmers and ranchers, she should help me get this bill through Congress and signed into law by President Obama. I would also welcome the President's support since he announced in his Wall Street Journal op-ed on January 18th, 2011 that he issued a new executive order to "root out regulations that conflict, that are not worth the cost, or that are just plain dumb." Well, Mr. Chairman, regulating farm dust IS just plain dumb. And may I remind the Committee that the President pledged during his State of the Union address that "when we find rules that put an unnecessary burden on businesses, we will fix them."

As the EPA is still in the midst of reviewing current regulations for dust, they still do not have the ability under current law to differentiate between urban and rural dust when enforcing their standards. At least every five years, the EPA has more opportunities to enforce stricter regulations and subject more and more rural communities to regulations for dust that is a part of their everyday lives. Even if we simply take the EPA Administrator at her word today, there is nothing stopping her agency from further regulating farm dust tomorrow except this bill. Farmers in Arizona already know the impact this has on their business because there is nothing in the current law that provides clarity on how the EPA should treat naturally occurring dust typical in rural America. This legislation would require the EPA to distinguish between urban and rural dust and provide ironclad certainty to the agriculture community so they can continue to provide a reliable, safe food supply in the United States and meet the world's food needs.

Thank you Mr. Chairman and Members of the Committee. I look forward to answering any questions you may have.

Mr. WHITFIELD. Thank you very much.

Mr. Hurt, you are recognized for 5 minutes.

STATEMENT OF HON. ROBERT HURT

Mr. HURT. Thank you, Mr. Chairman. It is an honor to be with you, and I thank you for the invitation to be here to talk about H.R. 1633. It is an honor to be here with Representative Noem, and I appreciate her leadership on this as well.

I represent Virginia's 5th District, a primarily rural area which includes most of central and Southside Virginia, and is larger than the State of New Jersey. In the 5th District, we have a proud heritage in agriculture, manufacturing and other resource-based industries that provide good-paying jobs for thousands of Virginians.

Dust is a necessary byproduct of the hard work the farmers and businesses in my rural district perform every day. These are the people who are struggling to survive, to grow, and to create jobs during this stalled economic recovery. That is why the EPA's national standard for fugitive dust, which falls under the Clean Air Act's National Ambient Air Quality Standards for coarse particulate matter is so troubling to the people that I represent. It is yet another example of the expansion of Federal Government and the uncertainty that Washington continues to impose upon our family farms, our small businesses and our rural communities.

That is why H.R. 1633 is necessary. The bipartisan legislation will help create a better economic environment for job creation by replacing the current Federal standard for dust that comes from driving on unpaved roads, working in agricultural fields and similar activities in rural America.

H.R. 1633 provides relief from the more stringent Federal standard for coarse particulate matter recommended in the April 2011 policy assessment prepared by the EPA staff. It also gives States and localities the flexibility to set a standard for dust if they choose. More important, it keeps the Federal Government out of the business of over-regulating naturally occurring dust unless the EPA can prove substantial adverse public health effects caused by dust and can provide a rigorous cost-benefit analysis on the need for such regulation.

While I applaud EPA Administrator Lisa Jackson's recent promise that she will not propose a more stringent standard for coarse particulate matter, I remain concerned about the uncertainty of the rulemaking process where these rules can be modified. I am also troubled by the comments of some officials in the administration to discredit the issue of Federal dust regulation, including Secretary of Agriculture Tom Vilsack who wrote that the "regulation of farm dust is another frequently repeated myth." After reviewing the EPA's 2006 Federal standards for coarse particulate matter, which by definition includes dust, I respectfully disagree with the statement that this is a myth.

I know that farmers and business owners in the 5th District disagree with this assessment of dust regulation as well. When traveling the 5th District last year, I spoke with a small business owner who was warned by a State regulator about the amount of dust that was coming off of his property. When this business owner questioned further about the regulator's concern over fugitive dust, the regulator replied that the business needed to take active measures to decrease the dust coming from the dirt driveway leading in and out of his facility.

It also appears that the Sierra Club would take issue with the administration's statements that Federal dust regulations are a myth as well. When discussing a petition it filed with the Virginia Air Pollution Control Board in my home State, which was ultimately dismissed, by the way, the Sierra Club alleged that the levels of dust it measured on a road in southwest Virginia were above the national health-based standard promulgated by the EPA. It is difficult to understand why the Sierra Club would take such action if the Federal Government mandates for fugitive dust are a myth.

While it is true that the EPA and State regulatory agencies have not set up monitors at every family farm and every unpaved road, the Sierra Club has shown one way in which these national standards for dust regulation continue to provide uncertainty for rural America.

Because of these dust regulations, rural farming and business operations can face the threat of unnecessary harassment, regulation and litigation by private actors or State and Federal regulators. Additionally, companies throughout the 5th District and the country are required to comply with the Federal standard for dust in order to obtain permits, such as those issued by the Virginia Department of Environmental Quality as required in its State Implementation Plan with the EPA.

This is why Congress must act in a bipartisan fashion to pass H.R. 1633 and assure our farmers and our rural industries that naturally occurring dust will not be subject to expanded Federal regulation. When it comes to dust, the EPA and the Federal Government should not mandate a one-size-fits-all standard that could eventually lead to lost production. With unemployment rates nearing 20 percent in some areas of Virginia's 5th District, we simply cannot afford to continue to perpetuate unnecessary regulations and uncertainty for the farmers and businesses in our rural communities.

I thank the chairman and I thank the ranking member again for inviting us to appear. I thank the subcommittee for considering our bill. I appreciate the opportunity to testify this morning and look forward to any questions.

[The prepared statement of Mr. Hurt follows:]

Testimony of the Honorable Robert Hurt Before the Energy and Commerce Committee's Energy and Power Subcommittee

October 25, 2011

Chairman Whitfield, Ranking Member Rush, and members of the Subcommittee, thank you for the invitation to testify before the Energy and Power Subcommittee this morning regarding H.R. 1633, the Farm Dust Regulation Prevention Act.

I represent Virginia's Fifth District, a primarily rural area which includes most of Central and Southside Virginia and is larger than the state of New Jersey. In the Fifth District, we have a proud heritage in agriculture, manufacturing, and other resource-based industries that provide good-paying jobs for thousands of Virginians.

Dust is a necessary byproduct of the hard work the farmers and businesses in my rural district perform every day. These are the people who are struggling to survive, to grow, and to create jobs during this stalled economic recovery. That is why the U.S. Environmental Protection Agency's (EPA) national standard for fugitive dust, which falls under the Clean Air Act's National Ambient Air Quality Standards (NAAQS) for coarse particulate matter (PM10), is so troubling to the people I represent. It is yet another example of the vast expansion of the federal government and the uncertainty that Washington continues to impose upon our family farms, our small businesses, and our rural communities.

That is why H.R. 1633, the Farm Dust Regulation Prevention Act, is necessary. This bipartisan legislation will help create a better economic environment for job creation by replacing the current federal standard for dust that comes from driving on unpaved roads, working in agricultural fields, and similar activities in rural America.

H.R. 1633 provides relief from the more stringent federal standard for coarse particulate matter recommended in the April 2011 Policy Assessment for the Review of the Particulate Matter National Ambient Air Quality Standards. It also gives states and localities the flexibility to set a standard for dust if they choose. More important, it keeps the federal government out of the business of over-regulating naturally-occurring dust unless the EPA can prove substantial adverse public health effects caused by dust and can provide a rigorous cost-benefit analysis on the need for such federal regulation.

While I applaud EPA Administrator Lisa Jackson's recent promise that she will not propose a more stringent standard for coarse particulate matter, I remain concerned about the uncertainty of the rulemaking process where these proposed rules can be modified.

I am also troubled by the comments of some in the Administration to discredit the issue of federal dust regulation, including Secretary of Agriculture Tom Vilsack who wrote that the "regulation of farm dust is another frequently repeated myth." After reviewing the EPA's 2006 federal standards for coarse particulate matter, which by definition includes dust, I respectfully disagree with these statements.

I know that farmers and business owners in the Fifth District disagree with this assessment of dust regulation, as well. When traveling the Fifth District last year, I spoke with a small business owner who was warned by a state regulator about the amount of dust coming from his property. When this business owner questioned further about the regulator's concern over fugitive dust, the regulator replied that the business needed to take active measures to decrease the dust coming from the dirt road leading in and out of the facility.

It also appears that the Sierra Club would take issue with the Administration's statements that federal dust regulations are a "myth." When discussing a petition it filed with the Virginia Air Pollution Control Board, which was ultimately dismissed, the Sierra Club alleged that the levels of dust it measured on a road in Southwest Virginia were "above the national health-based standard promulgated by the U.S. Environmental Protection Agency." It is difficult to understand why the Sierra Club would take such action if the federal government mandates for fugitive dust are a "myth."

While it is true that the EPA and state regulatory agencies have not set up monitors at every family farm and unpaved road, the Sierra Club has shown one way in which these national standards for dust regulation continue to provide uncertainty for rural America.

Because of these dust regulations, rural farming and business operations can face the threat of unnecessary harassment, regulation, and litigation by private actors or state and federal regulators.

Additionally, companies throughout the Fifth District and the country are required to comply with the federal standard for dust in order to obtain permits, such as those issued by the Virginia Department of Environmental Quality as required in its State Implementation Plan with the EPA.

This is why Congress must act in a bipartisan fashion to pass H.R. 1633 and assure our farmers and other rural industries that naturally-occurring dust will not be subject to expanded federal regulation. When it comes to dust, the EPA and the federal government should not mandate a one-size fits all standard that could eventually lead to lost production. With unemployment rates nearing 20 percent in some areas of Virginia's Fifth District, we simply cannot afford to continue to perpetuate unnecessary regulations and uncertainty for the farmers and businesses in our rural communities.

I thank the Chairman, Ranking Member, and members of the subcommittee for the opportunity to testify this morning and look forward to answering your questions.

Mr. WHITFIELD. Well, thank both of you for your testimony. We appreciate your taking time to talk about your legislation, and I was delighted to hear Ms. Noem indicate that you do have bipartisan support. How many cosponsors of this bill do you have?

Mrs. NOEM. Well, there are 100 cosponsors that are signed on to the bill. There also has been a lot of support shown over in the Senate side as well. I mean, it is a commonsense bill that we certainly recognize could be addressed—the concerns could be addressed through this legislation.

Mr. WHITFIELD. And has a similar bill been introduced on the Senate side?

Mrs. NOEM. You know, there has been a bill that has been talked about. I am not certain if the sponsor is continuing to pursue it.

Mr. WHITFIELD. But when we say that EPA is not regulating coarse particulate matter, of course, in any nonattainment area, if the State does not have a State implementation plan, the Federal Government certainly has the authority to step in. Is that correct, Mr. Hurt?

Mr. HURT. Absolutely, and I would like to maybe address some of the concerns raised by Mr. Rush and Mr. Waxman, that section 3, it does allow for the Federal Government to come in but under circumstances that I think any American would find very reasonable, and that is, when it is proven that there are substantial health risks and after a cost-benefit analysis that this makes sense, and I think that from what I have heard across my district, that is exactly the kind of view that Americans and 5th District Virginians would like to see going on here in Washington. And it is also important to note that this does nothing to change the particulate matter 10 and PM2.5 standards, the emissions that the ranking member and Mr. Waxman discussed, would still be regulated under or viewed through those different standards.

Mr. WHITFIELD. You know, it is interesting we find ourselves here discussing the regulation of dust. I know that there are some studies that say well, there's some correlation between particulate matter, coarse particulate matter, and health, and then there are other studies that indicate there is no causal relationship whatsoever, and yet—and I know we have a gentleman from Arizona, I believe, in the next panel, but it is my understanding that under the State implementation plan of Arizona, in some instances on windy days the farmers are literally prevented from farming. Is that your understanding?

Mrs. NOEM. Mr. Chairman, yes, it is my understanding, and that would be the facts that they face every single day, and I think there is a clear definition and difference between urban dust, which is the kind of dust that has been proven scientifically to create the adverse health effects that a lot of the questioning has come from. There hasn't been that kind of scientific research and data that has shown the detrimental effects of this nuisance dust, which we are addressing in this piece of legislation. We are talking about dirt, soil, matter that occurs naturally through the course. Some of the concerns that were brought up in previous statements did happen to come from coal-fired plants, from mining, other situations such as that, scientific research has proven that that is very different than the type of rural dust that we are talking about with this piece of legislation.

Mr. HURT. If I could just comment on that, I think also one of the things that I have discovered in working on this legislation is that at some—we have standards, but at some level at the end of the day, if you can't abate the dust, the only way to stop it is to stop production or stop driving on the roads, and what does that translate to? That translates to lost jobs.

Mr. WHITFIELD. Well, one thing that I think also is beneficial in your legislation, my understanding under the Clean Air Act, there really is no definition of nuisance air so it could be whatever it could be. At least in this legislation make an attempt to define it, which may not suit everyone but that would be an area that we would have an opportunity to work with others to at least have a definition of that, which I think it is important.

Mrs. NOEM. Yes, Mr. Chairman, I would agree. I think this piece of legislation the EPA should have no problem with. I really do. I think they should be very supportive of this because it simply says that they are not going to change their standards for a year, which they have already said that they are not going to do, and then it provides that definition. Rural dust and urban dust are not the same thing, and I think it would be very helpful to them and their processes and how they evaluate the ways that they approach enforcing the Clean Air Act to have that definition in place because they are very different, and the research behind them shows that.

Mr. WHITFIELD. Well, some people make the argument well, EPA is not going to regulate it anyway so we don't need this legislation, but we know for a fact that entities file a lot of lawsuits over at EPA, and whether EPA intends to do something or not, they frequently find themselves in lawsuits and frequently they enter into consent decrees in many instances agreeing with the plaintiff and then it becomes a court order and that is another frustrating thing. We find the court in many of our environmental regulations, their decisions as we do regulations coming out and initiated by EPA.

Mrs. NOEM. Yes, Mr. Chairman, this bill provides certainty and it provides certainty to a risky business that a lot of farmers and ranchers engage in and the people in rural areas are trying to keep their doors open and provide for their families, and this shows them that we are going to give them the certainty they need to be protected from those types of sudden regulations that may come up because of lawsuits and environmental issues.

Mr. WHITFIELD. Well, thank you all very much.

At this time I recognize Mr. Rush for 5 minutes.

Mr. RUSH. I want to thank you, Mr. Chairman, and I want to also thank my colleagues, Representative Noem and Representative Hurt, for being here today, and I want you to know that my grandfather was a farmer. I was raised in my early years on a farm, and I am pro-farmer, and I see you are the sponsor of this bill, and I want to focus my questions on the bill.

Representative Noem, many on the minority side are concerned with some of the language that is not clearly defined in section 3. Specifically, the "nuisance dust" as defined by "other activities typically conducted in rural areas" is causing concern for me and others because it may exempt many other industrial activities from

Clean Air Act regulations. You are the sponsor of H.R. 1633, and is it your intention to provide exemptions for other activities not associated with standard agricultural practices in section 3, and if not, would you be amenable to modifying this language in order to make clear the bill's intention?

Mrs. NOEM. Well, thank you for the question, Representative Rush, and I certainly believe that the title of the bill and the language of the bill is very clear that it means to address farm dust and nuisance dust throughout the piece of legislation. I think that some of the interpretation that it goes too far and might include things such as coal ash and other harmful pollutants is that my bill simply does not exempt anything from regulations. It simply gives States and localities the flexibility to regulate dust in rural areas on their own. Now, if there are no local regulations that address in this place Federal regulations will certainly apply if the EPA— if the dust proves that it has negative health benefits and if it does rigorous cost-benefit analysis. So I believe the legislation as it stands today with the title that it has and with the language it has within it clearly defines nuisance dust and what is to be regulated and that the States and local governments certainly have the opportunity to address the concerns that may be particular in one area.

Mr. RUSH. Well, you feel quite strongly that your bill is necessary in light of the fact that EPA has already come out and publicly stated that it would not propose any changes to the current standard of 10 PM or 10 micrometers for coarse particulate matter. Can you explain why you feel so strongly?

Mrs. NOEM. I feel so strongly because I think the fact that if there is a piece of legislation out there that guarantees that EPA will not take any action for the next year, that that is a benefit to our small farmers and producers across this country. It is not that they wouldn't trust the EPA, but I certainly think that they would appreciate knowing that there is a guarantee on no changes for the next year.

The second part of this bill is that it actually does define the difference between rural dust, nuisance dust and urban dust simply because of some of the testimony that I gave earlier, that there is a big difference between the nuisance dust and that it has proven to not have the negative side effects and health benefits, or detrimental effects that some of the urban dust does that you referenced when you gave your opening statement. There is a big difference between those two different types of dust that occur in this country, and that definition and clarity between the two will certainly help the industry as well.

Mr. RUSH. Is there any, besides industrial dust and particulate matter, is there any other dust classification that are exempted or included in your legislation?

Mrs. NOEM. Well, I don't believe so. As far as what this simply does is to put that definition into place in statute that there is a nuisance dust definition and what is included in that is the naturally occurring dust particles that would happen and the difference between urban dust, and this gives clarity to the EPA. This makes their job easier. They can look at each of these two different types of dust and know specifically how to define them and what the adverse health effects are on those, and then it also allows them the opportunity to come into area if the State and local governments do not.

Mr. RUSH. Thank you, Mr. Chairman. I yield back.

Mr. WHITFIELD. Thank you, Mr. Rush.

It is the custom of this committee that the chairman and ranking member will ask other Members questions, so we have completed that, and I want to thank you all once again for introducing the legislation and for——

Mr. WAXMAN. Mr. Chairman, you are not going to allow other members to ask questions of this panel?

Mr. WHITFIELD. Would you like to ask some questions?

Mr. WAXMAN. I would like to ask some questions.

Mr. WHITFIELD. Without objection, then I recognize the gentleman for 5 minutes.

Mr. WAXMAN. I just want to take issue with some of the things that have been said because I think you oversimplified it to the point where I think your conclusions are incorrect. First of all, the title of the bill has no legislative effect. What has legislative effect is the wording of the bill. And you made a couple statements, Representative Noem, that I take issue with. You said there is no proven difference between—there is a proven difference between urban and rural dust.

Mrs. NOEM. I said—thank you, Representative Waxman. I appreciate that. What my statement was or should have been was that the scientific research is very different showing the detrimental effects of urban dust versus rural dust, that there is much different research data that is available on the detrimental health effects of urban dust as where——

Mr. WAXMAN. The Clean Air Act doesn't regulate dust. The Clean Air Act regulates harmful pollutants, and in this case, we are talking about two kinds of pollutants. We are talking about fine particulates and coarse particulates. The standard was originally set when President Reagan was President, and it has been reviewed but the basic standard has been in place.

Now, you said that there is no proven adverse health effect from rural dust. If that rural dust is produced by farm machinery, that could have harmful impact, couldn't it?

Mrs. NOEM. It could, but we could speculate all day. What I prefer to operate with is the facts that we have in front of us.

Mr. WAXMAN. Well, the facts we have in front of us is your bill defines this nuisance dust which is a new term in law that you would propose to put in law, and it says particulate matter generated from natural sources, OK, unpaved roads, agricultural activities, earth moving or activities typically conducted in rural areas, and I mentioned in my opening statement that a lot of things are conducted in rural areas, which could add to the particulate matter which particularly in the area of fine particulates, there is a genuine threat to human health.

The point that I am raising is that your intentions seem to be, both of you, pretty reasonable. You don't want the dust in rural areas regulated, as Congressman Hurt said. If you are going to try to stop the dust coming from farms, you would have close down the farms and lose the jobs. That doesn't make any sense at all. But the problem is, nobody is proposing to do the things that you fear might happen. If you had a 1-year period of time in which there could be no regulation on coarse particulates coming from dust in the rural areas, well, that could give somebody certainty for a year. Nobody is planning to do it anyway. But I fear that your bill is drafted in a way that goes much further, and it doesn't sound like that that is your intention.

Representative Noem, I mentioned in my opening statement that it is a nonexistent problem and we have so many real ones that should be addressed. There was an editorial my staff brought to my attention from a newspaper. It is the largest newspaper in South Dakota, and it said, "There are important issues at the Federal level right now that will have direct impact on our States so it is disappointing to see Representative Kristi Noem continue her fight against a made-up problem like the potential for farm dust regulations by the Environmental Protection Agency. Dust has become a lightning rod for some Republicans, drumming up fear in farming communities that more Federal Government intrusion and over-regulations coming to take money out of their pockets. Noem proposed legislation that would ban the EPA from regulating farm dust for a year, and similar legislation was advanced by Senator Mike Johanns. The problem is that the EPA has repeatedly and at every turn said it has no intention of regulating farm dust. On Monday it went as far as to write a letter to Congress stating it would not be regulating dust kicked up by combines. That should put the issue to rest."

With those multitude of assurances that this is a phantom issue, what is your response to this editorial?

Mrs. NOEM. Well, Representative Waxman, that editor of that newspaper certainly doesn't represent my farmers and ranchers across South Dakota, and it is clear that he doesn't understand the bill, because in that editorial he didn't address the fact that it is going to provide a clear definition between nuisance dust, rural dust and urban dust. He simply——

Mr. WAXMAN. Let me take exception to——

Mrs. NOEM. One of the——

Mr. WAXMAN. Excuse me. Let me take exception. You state that as a fact but there is nothing in the law that says this dust is from rural areas, this dust from urban areas, it is different. The difference is only the amount of particulate matter in the region and particularly if it's nonattainment, which is not attaining what is the health standard.

When I was a young member of the State assembly in California, I heard that there might be a freeway coming through—I ask for 30 seconds more—and I went out of my way to make sure that we fought that freeway and it was stopped. It turned out they never intended it but the people in my district thought I stopped it anyway. That is a good thing to do politically, but when you change something like the Clean Air Act, a lot of unintended consequences, I fear for that. If there is a chance to go through this legislation, maybe we can change it in some way, but I fear that your bill goes too far.

Thank you, Mr. Chairman.

Mr. WHITFIELD. Mr. Waxman, your question—oh, yes, Ms. Noem.

Mrs. NOEM. Well, I just wanted to make a statement that certainly the people in South Dakota recognize, widespread they recognize the need for this piece of legislation or else I wouldn't be bringing it, but they have been talking to me about it every single meeting that I have that people deal with rural industries in South Dakota. And I think when you hear the personal story of Kevin Rogers a little bit later you will really——

Mr. WAXMAN. But that is another State where there is a nonattainment.

Mrs. NOEM. But certainly right now——

Mr. WAXMAN. When people are fearful, you ease the fears.

Mr. WHITFIELD. OK.

Mr. WAXMAN. Whether it is realistic or not.

Mr. WHITFIELD. We all get excited about dust, but let us calm down here a minute.

Mr. WAXMAN. Settle the dust.

Mr. WHITFIELD. Yes, let us settle the dust here.

But Mr. Waxman raised some dust, and now I would recognize Mr. Shimkus for 5 minutes of questions.

Mr. SHIMKUS. Thank you, Mr. Chairman.

A couple things. Kristi, how far is your home from a paved road?

Mrs. NOEM. Well, my home particularly is not too far. It is about a quarter of a mile from a paved road. But our farm is about 8 miles from a paved road.

Mr. SHIMKUS. And is that chaff, as I would call it, or is it dust? Is it a dirt road or is it limestone rock road?

Mrs. NOEM. Oh, it is a dirt road. It is a gravel road.

Mr. SHIMKUS. So it is gravel, and if there is an air monitor placed on that gravel road, which is 8 miles from a paved road, the gravel road probably would not be in attainment on the PM_{10} standard when the big four-wheel-drive hemi pickup truck with the horse-drawn trailer goes down that road. Isn't that correct?

Mrs. NOEM. I would agree. I would say virtually every single field during harvest time would be in nonattainment.

Mr. SHIMKUS. And I have a photo that I showed Administrator Jackson when she first testified, and I will probably pull it up later on, and it is this time of the year when we are finishing cutting of beans, and it shows a plume. Now, some people would say—oh, there it is, right there. That is right outside my hometown just north of Collinsville. Now, if you had an air monitor right behind that, it would probably set off. But that is not diesel, that is just chaff. That is organic. That is leaves, that is stalk, and that is what we call cutting of beans.

Mr. WHITFIELD. Is that natural dust?

Mrs. NOEM. Yes.

Mr. SHIMKUS. So my point is, in rural America where the air monitor is could determine it, and the difference between urban America and rural America is that dust cloud will disperse way before it is in any concentration that would kick off. So a concern, and so the additional regulation imposed is a severe threat to rural America. You have how many agriculture groups in support of this bill?

Mrs. NOEM. Over 100.

Mr. SHIMKUS. Are they just crazy? I mean, are they just meddling? They have nothing else to do than be worried about the EPA?

Mrs. NOEM. Well, Representative Shimkus, if I could say one thing that Representative Waxman continued to say over and over is that dust is not currently regulated, and it is. The EPA does regulate dust, and the staff did recommend tightening those standards. So when he believes there is no concern, there is valid concern in rural America.

Mr. SHIMKUS. Robert, do you want to add anything?

Mr. HURT. Well, I would say a couple of things. You know, when we were asked whether or not we need this bill, to me, the question ought to be, why don't we use our legislative prerogative to guide policy in this country. I think if you talk to the people I represent, they say for far too long the Congress has wholesale given its legislative prerogative over to agencies like the EPA who are not elected, who are not accountable to the people. So why on earth would not we take our responsibility as being a voice for the people seriously and what objection could one have to exercising that legislative authority that has been given to us by the people we represent?

Going back again to some of the questions that have been asked about the actual standard, there is nothing unreasonable about section 3 and the standard that is proposed. It just says there must be shown substantial health risk and that there is a cost-benefit analysis that goes through and proves that the benefits outweigh the costs. So I don't think anybody is suggesting that you have—and I in my district, my rural district, we have power plants. No one is suggesting that emissions from power plants be exempted in any way, and this bill would not do that.

And then finally, as it relates to the fear mongering, and I take issue and I wish Mr. Waxman was here, I take issue with his suggestion that this is somehow politically motivated. I talk to farmers in my district all the time whose fears of government regulation are real and they translate to lower productivity and fewer jobs, and all they are trying to do—you know, I have a farmer in Nelson County, he is a fruit grower. He says, you know, I get regulated by the Department of Labor, Department of Transportation, the IRS, the USDA, the EPA. He said all I am trying to do is grow peaches, I have been doing that for five generations, how hard can it be.

Mr. SHIMKUS. Let me reclaim my time and just recognize Cory for a unanimous consent request.

Mr. GARDNER. Thank you. And I just would like to ask permission for the record to submit letters of support from well over 100 different organizations that support H.R. 1633: NFIB, chambers of commerce, ag groups, farm organizations, business groups. Yield back my time.

Mr. WHITFIELD. Without objection. Thank you very much.

[The information follows:]

WESTERN
BUSINESS
ROUNDTABLE

October 3, 2011

The Honorable Fred Upton
Chairman
House Energy and Commerce Committee
2125 Rayburn H.O.B.
Washington, D.C. 20515

The Honorable Ed Whitfield
Chairman
Subcommittee on Energy and Power
House Energy and Commerce Committee
2125 Rayburn H.O.B.
Washington, D.C. 20515

Dear Chairmen Upton and Whitfield:

I am writing, on behalf of the multi-sector membership of the Western Business Roundtable, to ask the House Energy and Commerce Committee to make consideration of The Farm Dust Regulation Prevention Act of 2011 (H.R. 1633) a legislative priority this Fall.

EPA is in the process of reviewing the particulate matter national ambient air quality standards (NAAQS) under the Clean Air Act (CAA). While EPA's primary focus has been on the PM2.5 standard, it is also considering whether to revise (reduce and make more stringent) the current coarse particulate matter ("PM10" or "fugitive dust") standard.

H.R. 1633 is intended to stop the agency from any effort to rush through revised regulations of the PM10 NAAQS standard. We wholeheartedly support that objective.

Coarse particulate matter is composed primarily of blowing dirt and naturally occurring organic material, which has not been shown to be of concern to public health and safety at ambient levels. (This is particularly the case for the type of rural coarse PM that is predominant on agricultural and other resource-based operations, especially in the arid West.)

Despite that fact, the current PM10 standard is set at 150 µg/m3 on a 24-hour basis. That standard, based on historically flawed health studies, is set conservatively low. In fact, in the 2006 final PM NAAQS rule, EPA acknowledged that the 150 µg/m3 PM10 standard was set based on a desire to be cautious and not on clear evidence that this very stringent level was necessary to protect against adverse public health effects.

The opinions expressed in this letter represent the views of a majority of Roundtable Members, but not necessarily all of our members.

While acknowledging the uncertainty of the scientific justification for making this standard more stringent, the April 2011 *Policy Assessment for the Review of the Particulate Matter National Ambient Air Quality Standards* includes a recommendation for EPA to revise the current course PM NAAQS downward to a level of 65-85 µg/m³ -- a level twice as stringent as the current standard.

We are very concerned that any decision by the EPA to reduce the level of the current PM10 standard would put many areas -- not just in the West, but nationwide -- into CAA nonattainment status, with the attendant restrictions on new economic development and growth.

A recent study by the National Cattlemen's Beef Association reaffirms that concern: it shows many rural areas simply will not be able to meet this new standard. This will be devastating for agricultural and natural resource-sector operations.

This is an issue that needs your Committee's attention. H.R. 1633 is a good vehicle for that discussion.

Sincerely,

Holly Propst

Holly Propst
Executive Director / General Counsel
Western Business Roundtable
14405 West Colfax Avenue, #159
Lakewood, CO 80401
1-800-410-1050

CHAMBER OF COMMERCE
OF THE
UNITED STATES OF AMERICA

R. BRUCE JOSTEN
EXECUTIVE VICE PRESIDENT
GOVERNMENT AFFAIRS

1615 H STREET, N.W.
WASHINGTON, D.C. 20062-2000
202/463-5310

October 12, 2011

The Honorable Fred Upton
Chairman
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

The Honorable Henry A. Waxman
Ranking Member
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

The Honorable Ed Whitfield
Chairman
Subcommittee on Energy and Power
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

The Honorable Bobby L. Rush
Ranking Member
Subcommittee on Energy and Power
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

Dear Chairmen Upton and Whitfield and Ranking Members Waxman and Rush:

The U.S. Chamber of Commerce, the world's largest business federation representing the interests of more than three million businesses and organizations of every size, sector, and region, supports H.R. 1633, the "Farm Dust Regulation Prevention Act of 2011," which would provide temporary relief to food producers and other agricultural industries from unattainable new federal regulations on airborne farm dust, while still providing a reasonable procedure for states to protect air quality.

The Environmental Protection Agency (EPA) is on the verge of issuing new National Ambient Air Quality Standards (NAAQS) for coarse particulate matter, or farm dust. According to reports, the new NAAQS could be twice as stringent as the current standard. These new standards could have a devastating impact on rural America, where arid land used for food production and other agricultural purposes—such as tilling soil, harvesting crops, livestock rearing, and traveling on dirt roads—would suddenly be thrust into nonattainment. The economic consequences of NAAQS nonattainment can be severe and include higher costs to industry, permitting delays, restrictions on expansion, and an inability to attract new business.

H.R. 1633 would provide immediate relief to farmers and rural areas by preventing revision of the current dust standard for one year from date of enactment. It would also allow states, localities, and tribes to regulate "nuisance dust" such as unpaved roads and dust resulting from agricultural activities, and would allow such regulations (which, unlike a NAAQS, can be crafted to balance economic impact with environmental protection) to supersede federal regulations covering the same dust. H.R. 1633 is a reasonable, well-thought-out approach to the difficult issue of regulating particulate matter while protecting the nation's agricultural industry.

The Chamber supports H.R. 1633 and urges the committee to report this legislation to the full House for consideration.

Sincerely,

R. Bruce Josten

Cc: Members of the Committee on Energy and Commerce

NFIB
The Voice of Small Business.

October 14, 2011

The Honorable Kristi Noem
U.S. House of the Representatives
226 Cannon House Office Building
Washington, DC 20515

Dear Congresswoman Noem:

On behalf of the National Federation of Independent Business (NFIB), the nation's leading small business advocacy organization, thank you for introducing H.R. 1633, the Farm Dust Regulation Prevention Act of 2011. This legislation will prevent the Environmental Protection Agency (EPA) from imposing stifling regulations on farm dust and other naturally occurring organic material in rural areas.

Without clear evidence indicating a public health risk at current farm dust levels, the EPA is considering reducing dust standards to an unreasonable measurement. Many rural small businesses are having difficulty complying with the standard currently and, if the standards are lowered, their ability to survive and stay viable would be further threatened. More stringent standards would result in decreased productivity, increased food prices and lost jobs in the rural economy. In these difficult economic times, members of the small business community in rural areas need relief from onerous regulation, not additional costs and mandates.

H.R. 1633 offers a two-pronged approach to effectively prevent the EPA from regulating dust in rural America while still maintaining the protections of the Clean Air Act to the public's health and welfare. First, the legislation would halt revision of the current dust standards for one year after enactment. Second, it would exempt agricultural dust from federal regulation if state and local authorities have already implemented dust control measures. If there are no local regulations in place, the EPA, prior to implementation, would be required to prove that dust causes adverse health effects and that the benefits of applying EPA's standards to that area outweigh the costs to the local and regional communities.

Thank you again for introducing H.R. 1633. I look forward to continuing to work with you on this and other small business issues as the 112th Congress continues.

Sincerely,

Susan Eckerly

Susan Eckerly
Senior Vice President
Public Policy

National Federation of Independent Business
1201 F Street NW • Suite 200 • Washington, DC 20004 • 202-554-9000 • Fax 202-554-0496 • www.NFIB.com

Oct. 17, 2011

The Honorable Ed Whitfield
Chairman
Subcommittee on Energy & Power
House Energy & Commerce Committee
2368 Rayburn House Office Building
Washington, D.C. 20515

The Honorable Bobby Rush
Ranking Member
Subcommittee on Energy & Power
House Energy & Commerce Committee
2268 Rayburn House Office Building
Washington, D.C. 20515

Dear Mr. Chairman and Mr. Ranking Member,

The undersigned organizations would like to express our strong support for the Farm Dust Regulation Prevention Act of 2011, H.R. 1633, which would bring some much needed certainty to agriculture and other rural resource-based industries during these current perilous economic and regulatory times. Our organizations request the Committee's support for keeping jobs in rural America by passing H.R. 1633 as quickly as possible.

The regulation of U.S. farmers, ranchers and rural resource-based industries has been a focal point of this Administration's Environmental Protection Agency (EPA) since President Obama took office in 2009. Such regulation has often lacked a scientific or legal foundation. From questionable legal analysis and scientific modeling that resulted in EPA requiring unattainable water quality standards in Florida and the Chesapeake Bay area, to possible dust regulation that would effectively require much of rural America to stop working in the soil, their actions are making it harder for family farmers, ranchers and others to make a living, and sending America down a path toward food, infrastructure, and energy insecurity.

The EPA's Policy Assessment for the Review of the Particulate Matter National Ambient Air Quality Standards made two recommendations with regard to revising the 24-hr coarse particulate matter (i.e. dust, PM_{10}) standard: (1) if the Administrator were to place more weight on the uncertainties in the science, she would be justified in retaining the current standard; or (2) if the Administrator were to place little weight on the uncertainties in the science, she would be justified in revising the standard down to a level within the range of 65-85 $\mu g/m^3$ with a revised 98th percentile form. Revising the level from the current 150 $\mu g/m^3$ to 65-85 $\mu g/m^3$, despite the revised form, would bring much of rural America into nonattainment, or to the brink of nonattainment where a slight shift in climate could result in a nonattainment designation.

As you are aware, farming and other resource-based industries are dusty professions. From tilling fields, to driving on dirt roads, to extracting resources, rural Americans deal with dust every day. Working in the soil is where they derive their livelihoods, and where the world derives much of its food and other essential resources. If the EPA were to revise the dust standard to 65-85 $\mu g/m^3$, states would be put in a position of having to impose regulatory restraints on rural operations, increasing the cost of production when that cost is already at historically high levels. And, for what purpose? Scientific studies have never shown rural dust to be a health concern at ambient levels.

Thankfully, this Congress and your Committee have the opportunity to ease this potential burden on rural America. H.R. 1633 would exempt rural "nuisance dust" from regulation under the Clean Air Act (CAA) if states and localities regulate it on their own. In the event a state or locality does not regulate rural dust, the Administrator could regulate it only if scientific studies show that there is a significant health effect from such dust in that particular area, and show that the costs to the local economy associated with dust regulation would not outweigh any benefits. H.R. 1633 is common sense legislation that retains the protections of the CAA and, at the same time, would stop EPA's regulatory overreach.

Thank you for holding a hearing on the Farm Dust Regulation Prevention Act. It's important legislation that the undersigned strongly support and urge passage of as soon as possible.

Sincerely,

Agribusiness Association of Iowa
Agribusiness Council of Indiana
Agricultural Retailers Association
Agri-Mark Inc.
Alabama Agribusiness Council
Alabama Cattlemen's Association
American Farm Bureau Federation
American Feed Industry Association
American Horse Council
American-International Charolais Association
American Seed Trade Association
American Soybean Association
American Sugar Alliance
American Sugarbeet Growers Association
American Veal Association
Arizona Cattle Feeders Association
Arizona Cattlemen's Association
Arkansas Cattlemen's Association
Association of National Grasslands
California Cattlemen's Association
Colorado Cattlemen's Association
Colorado Livestock Association
Colorado Wool Growers Association
Cooperative Network
CropLife America
Dairy Farmers of America
Dairy Producers of New Mexico
Dairy Producers of Utah
Dairylea Cooperative
Delaware Maryland Agribusiness Association
Far West Agribusiness Association
Florida Cattlemen's Association
Georgia Agribusiness Council
Georgia Cattlemen's Association
Grain and Feed Association of Illinois
Idaho Cattle Association
Illinois Beef Association
Illinois Fertilizer & Chemical Association
Independent Cattlemen's Association of Texas
Indiana Beef Cattle Association
Iowa Cattlemen's Association
Iowa Institute for Cooperatives
Kansas Cooperative Council
Kansas Grain and Feed Association
Kansas Livestock Association
Kentucky Cattlemen's Association

Louisiana Cattlemen's Association
Michigan Agri-Business Association
Michigan Cattlemen's Association
Minnesota Crop Production Retailers
Minnesota State Cattlemen's Association
Mississippi Cattlemen's Association
Missouri Agribusiness Association
Missouri Cattlemen's Association
Montana Agricultural Business Association
Montana Stockgrower's Association
National Association of Wheat Growers
National Cattlemen's Beef Association
National Chicken Council
National Corn Growers Association
National Cotton Council
National Cotton Ginners' Association
National Council of Farmer Cooperatives
National Federation of Independent Business
National Grain and Feed Association
National Livestock Producers Association
National Meat Association
National Milk Producers Federation
National Mining Association
National Oilseed Processors Association
National Pork Producers Council
National Renderers Association
National Sorghum Producers
National Stone, Sand & Gravel Association
National Turkey Federation
Nebraska Agri-Business Association
Nebraska Cattlemen's Association
Nevada Cattlemen's Association
New Mexico Cattle Growers Association
New Mexico Wool Growers Inc.
North American Limousin Association
North Carolina Cattlemen's Association
Northeast Dairy Farmers Cooperative
Oklahoma Agribusiness Retailers Association
Oklahoma Cattlemen's Association
Oklahoma Grain and Feed Association
Oklahoma Seed Trade Association
Oregon Cattlemen's Association
Pennsylvania Cattlemen's Association
Pennsylvania Cattlewomen's Association
Public Lands Council
Rocky Mountain Agribusiness Association
Select Milk Producers, Inc.

South Carolina Cattlemen's Association
South Dakota Association of Cooperatives
South Dakota Cattlemen's Association
South Dakota Corn Growers Association
South Dakota Farm Bureau
South Dakota Sheep Growers Association
South Dakota Soybean Association
Southeastern Livestock Network
Southern Crop Production Association
St. Albans Cooperative Creamery
Tennessee Cattlemen's Association
Texas Ag Industries Association
Texas Agricultural Cooperative Council
Texas and Southwestern Cattle Raisers Association
Texas Cattle Feeders Association
Texas Grain & Feed Association
The Fertilizer Institute
United Egg Producers
United Fresh Produce Association
Upstate Niagara Cooperative
USA Rice Federation
US Beet Sugar Association
US Chamber of Commerce
US Poultry & Egg Association
Virginia Cattlemen's Association
Virginia Poultry Federation
Washington Cattle Feeders Association
Washington Cattlemen's Association
Western Business Roundtable
West Virginia Cattlemen's Association
Wisconsin Agri-Service Association
Wisconsin Crop Production Association
Wyoming Stock Grower's Association

cc'd

The Honorable Fred Upton
The Honorable Henry Waxman

Mr. WHITFIELD. Once again, thank you all for taking time to be with us. We appreciate it and look forward to working with you on this issue. Thank you.

At this time I will call up the Honorable Gina McCarthy, the Assistant Administrator for Air and Radiation, U.S. Environmental Protection Agency. Ms. McCarthy, we welcome you back to Capitol Hill, which I am sure you enjoy coming up here a great deal.

Ms. MCCARTHY. It is always my pleasure, Mr. Chairman.

Mr. STEARNS. Sorry we don't have some refreshments for you this morning.

We do appreciate your being here very much to testify on H.R. 1633, and at this point I would recognize you for 5 minutes for your opening statement.

STATEMENT OF REGINA MCCARTHY, ASSISTANT ADMINISTRATOR FOR AIR AND RADIATION, ENVIRONMENTAL PROTECTION AGENCY

Ms. MCCARTHY. Thank you, Chairman Whitfield, Ranking Member Rush, members of the subcommittee. I appreciate the opportunity to testify on the Farm Dust Regulation Prevention Act of 2011. This sweeping bill could roll back Clean Air Act protections and adversely affect public health in urban, suburban and rural areas.

This bill has been sold as a narrow one. If all this bill is intended to do is prevent the EPA from tightening the coarse particle standard, the bill is simply unnecessary. Administrator Jackson committed in an October 14, 2011, letter that she is prepared to propose to keep the PM_{10} standard, or coarse particle. The National Ambient Air Quality Standard will remain unchanged if the Administrator's proposal as intended is moved forward. I am hopeful that this announcement ends the myth that the agency plans to tighten the regulation of farm dust.

Whether intended or not, we are concerned that this bill does far more than its sponsors have indicated. It could prevent EPA from regulating power plants or other major industrial sources of pollution in urban and suburban areas as well as in rural areas. This is because section 3A takes away Clean Air Act authority to regulate nuisance dust and then defines nuisance dust very broadly, and it includes particulate matter generated from activities typically conducted in rural areas. This exemption would cover both coarse and fine particles emitted from anywhere in the country. It might include pollutants like NOx and SOx that form fine particles. This would appear to preclude EPA from regulating particle pollution from activities such as power plants, mining operations, industrial operations and construction anywhere in the country because those activities are not atypical to occur in rural areas. It could even call into question EPA's ability to enforce tailpipe emission standards that would limit particle pollution from cars, trucks and buses because those same cars, trucks and buses typically drive in rural areas. In other words, the farm dust bill might forever bar the EPA from limiting emissions of coarse particles, fine particles, sulfur dioxide, nitrogen oxide and mercury from power plants, industrial sources and maybe even motor vehicles.

We are also concerned that H.R. 1633 could block revision of fine particle standards and implementation of existing fine and coarse particle standards. Since the existing particle programs did not distinguish between nuisance dust and other particles, the bill raises the issue of whether the EPA could enforce or maintain existing fine or coarse particle pollution standards. The term “nuisance dust” is not a scientific term, which would make it very difficulty to incorporate an exclusion of nuisance dust into a scientifically based program. This could raise practical concerns. It is unclear how one would design a monitor that measured fine particles except for nuisance dust and it is unclear how the agency could implement particle pollution programs without a scientifically sound monitoring network, and it is certainly unclear what the costs would be to States or local communities to put in that type of a monitoring system could one be designed and developed.

The existing fine and coarse particle pollution reduction programs are important for public health. While nuisance dust sounds like it is merely inconvenient, it includes particle pollution that is harmful to public health. When we breathe, both coarse and fine particle pollution can reach the deepest region of our lungs and move past our bodies’ filtering systems. We have a health-based standard for particles smaller than 10 micrometers since 1987. That is 24 years. Coarse particles have been linked to a variety of adverse health effects including hospital visits related to cardiovascular and respiratory diseases and premature death. This is the standard that the Administrator has announced she is prepared to propose to retain, not propose to change.

In 1997, EPA added a health-based standard for fine particles, which cause serious health effects. Nationally, EPA estimates that exposure to fine particles results in, among other effects, 130,000 to 320,000 excess deaths in adults, 110,000 emergency room visits by children, 2.5 million cases of exacerbation of asthma, and 18 million lost workdays each year.

I have briefly discussed some of the potential consequences of H.R. 1633. As written, this bill would significantly weaken EPA’s authority under the Clean Air Act and significantly cause and preclude us from preventing public health protections that are necessary for the American people. If these consequences aren’t intended, it would be best to revise the bill to avoid the confusion, litigation and the concerns that I have raised. I hope this information that I presented as well as the Administrator’s October 14, 2011, letter clarifies EPA’s intentions and obviates the need for this legislation. It is simply not necessary at this time to block the tightening of the PM_{10} standard which the Administrator has very clearly indicated that she has no intention at this time of proposing.

Thank you very much.

[The prepared statement of Ms. McCarthy follows:]

Regina McCarthy
Assistant Administrator for Air and Radiation
U.S. Environmental Protection Agency

Subcommittee on Energy and Power
Committee on Energy and Commerce
U.S. House of Representatives

October 25, 2011
Written Statement

Chairman Whitfield, Ranking Member Rush, and Members of the Subcommittee, I appreciate the opportunity to be here this morning to address the H.R. 1633, The Farm Dust Regulation Prevention Act of 2011. As you know, EPA Administrator Jackson committed in an October 14, 2011 letter that EPA is prepared to propose to keep the PM10 national ambient air quality standard (NAAQS) as it is, with no change. This existing standard has been in effect since 1987. I am hopeful that this announcement ends the myth that the Agency has plans to tighten regulation of "farm dust."

Given the Administrator's announcement, this bill is no longer necessary to produce its stated result -- to prevent the tightening of the coarse particle standard. Additionally, it is crucial for this Committee to note that this bill does far more than prohibit EPA from revising the coarse particle standard, and could roll back basic Clean Air Act protections and adversely affect public health in urban, suburban and rural areas.

Regulating Particulate Matter to Protect Human Health and Welfare

While I understand that the common parlance floating around the Hill is the term "farm dust" or, the term the bill uses, "nuisance dust," my remarks today are focused on particulate matter or particle pollution. Particulate matter (PM) is a term widely referenced and understood by state and local officials, scientists, medical professionals, industry, public health groups and other stakeholders, including many in the agricultural and mining communities.

Particle pollution is a complex mixture of extremely small particles and liquid droplets in the air. When we breathe this pollution in, these particles can reach the deepest regions of our lungs and move past our bodies' filtering systems. Human exposure to particle pollution is linked to a variety of significant health problems. Particle pollution also is the main cause of visibility impairment in the nation's cities and national parks.

Extensive peer-reviewed science, researched over many decades, shows that there are serious health effects associated with particle pollution. Prior to 1987, EPA standards targeted particles generally smaller than 25-45 micrometers. We revised the standards in 1987 to focus on those particles smaller than 10 micrometers (PM10) because those are the particles that can be inhaled and can lodge in the lungs. By comparison, a human hair is 70 micrometers in diameter.

In 1997, EPA added a national ambient air quality standard specifically for fine particles, which are those particles smaller than 2.5 micrometers (PM2.5). Fine particles can be emitted directly or they can form from chemical reactions of gases such as sulfur dioxide, nitrogen dioxide and some organic gases. Sources of fine particle pollution (or the gases that contribute to fine particle formation) include power plants, gasoline and diesel engines, wood combustion, high-temperature industrial processes such as smelters and steel mills, and forest fires. The science continues to show that fine particles cause serious health effects, and can lead to premature death, increased hospital admissions and emergency room visits for heart attacks and strokes, and development of chronic respiratory disease. Nationally, EPA estimates that exposure to fine particles results in, among other effects, 130,000 – 320,000 excess deaths in adults (5.4% of all deaths), 110,000 emergency room visits by children, 200,000 cases of acute bronchitis in children, 2.5 million cases of exacerbation of asthma and 18 million lost work days each year.[1]

After EPA set the fine particle standards in 1997, the existing daily PM10 standards remained in place to provide continued protection against exposures to coarse particles -- those particles measuring between 2.5 and 10 micrometers in diameter. The daily PM10 standards were adopted again by the EPA in 2006 and upheld by the U.S. Court of Appeals for the District of Columbia in 2009.[2] Sources of coarse particles include road dust kicked up by traffic (called resuspended dust), construction and demolition activities, some industrial and agricultural operations, and biological sources. Coarse particles have been linked to a variety of adverse health effects, including hospital visits related to cardiovascular and respiratory disease, and premature death. While the body of scientific evidence is much more limited for coarse PM than that for fine particles, the Agency's review of the studies indicates that short-term exposures to coarse particles remain a concern.

EPA is currently in the statutorily-mandated process of reviewing the underlying science on particulate matter and determining whether to change the particulate matter standards. The Administrator considered this body of evidence, along with analyses prepared by EPA scientists and advice from the independent Clean Air Scientific Advisory Committee, and is prepared to propose to retain the coarse particle standard in place today – the 1987 standard.

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[1] Fann N, Lamson A, Wesson K, Risley D, Anenberg SC, Hubbell BJ. Estimating the National Public Health Burden Associated with Exposure to Ambient $PM_{2.5}$ and Ozone. Risk Analysis; 2011

[2] American Farm Bureau v. EPA, 559 F. 3d 512, 531-537 (D.C. Cir. 2009).

We remain committed to common sense approaches to improving air quality across the country without placing undue burden on our farmers. The EPA recognizes that the U.S. Department of Agriculture (USDA) has been working with the agricultural community to develop conservation systems and activities to control coarse particle emissions. The EPA will continue to work with USDA to prioritize the development of these new systems and activities to improve air quality throughout the U.S. without placing undue burden on our nation's farmers and ranchers.

We have been making steady progress in reducing levels of particulate matter in the air – both fine and coarse – in this country for more than two decades, improving the public health of Americans while the economy has continued to grow. Only 39 counties in the United States are classified as nonattainment for PM10. EPA's implementation of the 1987 PM10 standard has resulted in improvements in air quality and not resulted in the dire outcomes that opponents sometimes predict. For example, monitoring information for PM10 illustrates the improvement. The national average ambient PM10 concentrations have improved by 38% from 1990 to 2009. This Clean Air Act program has resulted in significant air quality improvements and public health protections in this country in every Administration over the 24 years since the PM10 standard went into place.

Comments on H.R. 1633

To the extent that this bill was intended to avert effects on agricultural operations that might have resulted from a change in the PM10 standard, the sponsors' concerns should be allayed by the Administrator's commitment that she is prepared to propose to keep the PM10 standard as it is, with no change.

As drafted, however, the bill does far more than prevent a change in the coarse particle standard. We believe it could result in far reaching damage to the bedrock public health protections in the Clean Air Act.

Section 3 of H.R. 1633 takes the very broadly defined "nuisance dust" out of the Clean Air Act. While "nuisance dust" sounds like it is merely inconvenient, that is not the case. As defined in the bill, "nuisance dust" includes both fine and coarse particle pollution that is harmful to public health. Section 3 could be interpreted to undermine many of the public health protections currently in the Act and could prevent reductions of PM2.5 from industrial activities in urban areas.

For example, section 3 raises issues regarding whether or how EPA could continue to implement even the existing fine particle and coarse particle standards. Since the existing particle programs do not distinguish between "nuisance dust" and other particles, the bill raises the issue of whether the EPA could enforce or maintain existing fine or coarse particle pollution standards.

Furthermore, unlike the terms "fine particle" and "coarse particle," the term "nuisance dust" is not a scientific or scientifically-defined term. It would be very difficult to incorporate an exclusion for "nuisance dust" into a scientifically-based program. This could raise practical problems. For example, monitoring air quality is an essential element of the ambient air quality program; it is how we determine which areas have healthy air and which do not. It is unclear how one could design a monitor that measured "fine particles except for nuisance dust," and it is unclear how the Agency could implement particle pollution programs without a scientifically sound monitoring network.

The effect of section 3 would extend beyond the ambient air quality program, and could prevent the regulation of major sources of air pollution in urban and suburban areas, as well as rural areas. The bill defines "nuisance dust" to include "particulate matter generated from . . . activities typically conducted in rural areas." It is not unusual to see coal-fired power plants, mining operations, industrial operations, and construction, among other activities, in rural areas. We would expect to hear arguments that "particulate matter generated from" these types of activities would include not only direct emissions of particles, but also emissions of precursors such as sulfur dioxide and nitrogen dioxide. If these arguments were successful, it could have far-reaching consequences, such as forever barring the EPA from limiting power plants' emissions of coarse particles, fine particles, sulfur dioxide, nitrogen oxides, and mercury.

Section 2 is also problematic. While it might appear to be consistent with the Administrator's coarse particle announcement, it arguably does much more. As currently drafted, it might also prevent the EPA from revising the fine particle standards for one year because it prevents the revision of a national ambient air quality standard "applicable to PM with an aerodynamic diameter greater than 2.5 micrometers." The EPA's regulation of fine particles, or PM2.5, is consistent with the scientific studies on which the standards are based. The monitors used for the many research studies underlying the PM 2.5 standards and for enforcing the PM 2.5 standards measure particles that include a small percentage of particles that are somewhat larger than 2.5 micrometers. This is by design, as the human respiratory system also allows some larger particles into the lungs as we breathe in. If this bill were to be enacted, EPA might be prevented from revising the fine particle standards because the current standards regulate, and our current scientific assessment is based on the public health consequences of, "fine particles" that include some particles larger than 2.5 micrometers in diameter.

The Clean Air Act

This bill would block programs that have been part of, or would continue, the 40-year Clean Air Act success story. For 40 years, the Clean Air Act has allowed steady progress to be made in reducing the threats posed by pollution and allowing us all to breathe easier. In the last year alone, programs implemented pursuant to the Clean Air Act Amendments of 1990 are estimated to have reduced premature mortality risks equivalent to saving over 160,000 lives; spared Americans more than 100,000 hospital visits; and prevented millions of cases of respiratory problems, including bronchitis and asthma.[3] They also enhanced productivity by preventing 13 million lost workdays; and kept kids healthy and in school, avoiding 3.2 million lost school days due to respiratory illness and other diseases caused or exacerbated by air pollution.[4]

However, few of the emission control standards that gave us these huge gains in public health were uncontroversial at the time they were developed and promulgated. Most major rules have been adopted amidst claims that that they would be bad for the economy and bad for employment.

Some may find it surprising that the Clean Air Act also has been a good economic investment for our country. In contrast to doomsday predictions, history has shown, again and again, that we can clean up pollution, create jobs, and grow our economy all at the same time. Over that same 40 years since the Act was passed, the Gross Domestic Product of the United States grew by more than 200 percent.[5]

Some would have us believe that "job-killing" describes EPA's regulations. It is misleading to say that enforcement of the Clean Air Act is bad for the economy and employment. It isn't. Families should never have to choose between a job and healthy air. They are entitled to both.

A study led by Harvard economist Dale Jorgenson found that implementing the Clean Air Act actually increased the size of the US economy because the health benefits of the Clean Air Act lead to a lower demand for health care and a healthier, more productive workforce. According to that study, by 2030 the Clean Air Act will have prevented 3.3 million work days lost and avoided the cost of 20,000 hospitalizations every year.[6] Another study that examined four regulated industries (pulp and paper, refining, iron and steel, and plastic) concluded that, "We find that increased environmental spending generally does not cause a significant change in employment."[7]

The EPA's updated public health safeguards under the Clean Air Act will encourage investments in labor-intensive upgrades that can put current unemployed or under-employed Americans back to work. Environmental spending creates jobs in engineering, manufacturing, construction, materials, operation and maintenance. For example, EPA vehicle emissions standards directly sparked the development and application of a huge range of automotive technologies that are now found throughout the global automobile market. The vehicle emissions control industry employs approximately 65,000 Americans with domestic annual sales of $26 billion.[8] Likewise, in 2008, the United States' environmental technologies and services industry 1.7 million workers generated approximately $300 billion in revenues and led to exports of $44 billion of goods and services[9], larger than exports of sectors such as plastics and rubber products.[10] The size of the world market for environmental goods and services is comparable to the aerospace and pharmaceutical industries and presents important opportunities for U.S. Industry.[11]

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[3] USEPA (2011). The Benefits and Costs of the Clean Air Act from 1990 to 2020. Final Report. Prepared by the USEPA Office of Air and Radiation. February 2011. Table 5-5. This study is the third in a series of studies originally mandated by Congress in the Clean Air Act Amendments of 1990. It received extensive peer review and input from the Advisory Council on Clean Air Compliance Analysis, an independent panel of distinguished economists, scientists and public health experts.

[4] Ibid.

[5] Bureau of Economic Analysis, National Economic Accounts, "Table 1.1.5. Gross Domestic Product," http://bea.gov/national/index.htm#gdp

[6] Dale W. Jorgenson Associates (2002a). *An Economic Analysis of the Benefits and Costs of the Clean Air Act 1970-1990. Revised Report of Results and Findings.* Prepared for EPA. http://yosemite.epa.gov/ee/epa/eerm.nsf/vwAN/EE-0565-01.pdf/$file/EE-0565-01.pdf

[7] Morgenstern, R. D., W. A. Pizer, and J. S. Shih. 2002. "Jobs versus the Environment: An Industry-Level Perspective." *Journal of Environmental Economics and Management* 43(3):412-436.

Jobs also come from building and installing pollution control equipment. For example, the U.S. boilermaker work force grew by approximately 35 percent, or 6,700 boilermakers, between 1999 and 2001 during the installation of controls to comply with EPA's regional nitrogen oxide reduction program.[12] Over the past seven years, the Institute for Clean Air Companies (ICAC) estimates that implementation of just one rule – the Clean Air Interstate Rule Phase 1 – resulted in 200,000 jobs in the air pollution control industry.[13] Similar effects have been recognized by the electric power industry as well. In a letter to the editor in the Wall Street Journal, eight major utilities that will be affected by our greenhouse gas pollution standards said, "Contrary to claims that EPA's agenda will have negative economic consequences, our companies' experience complying with air quality regulations demonstrates that regulations can yield important economic benefits, including job creation, while maintaining reliability."[14]

Conclusion

I have described just some of the potential consequences of H.R. 1633. If these consequences are intended and the bill were interpreted accordingly, then H.R. 1633 would significantly weaken EPA's authority under the Clean Air Act, and significantly and adversely harm public health. If these consequences are not intended, it would be best to clarify and revise the bill to avoid the confusion and litigation that would occur if this bill were enacted.

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[8] Manufacturers of Emissions Control Technology (http://www.meca.org/cs/root/organization_info/who_we_are)

[9] DOC International Trade Administration. "Environmental Technologies Industries: FY2010 Industry Assessment. http://web.ita.doc.gov/ete/eteinfo.nsf/068f3801d047f26e85256883006ffa54/4878b7e2fc08ac6d85256883006c452c/$FILE/Full%20Environmental%20Industries%20Assessment%202010.pdf (accessed February 8, 2011)

[10] U.S. Census Bureau, Censtats Database, International Trade Data--NAICS, http://censtats.census.gov/naic3_6/naics3_6.shtml (accessed September 6, 2011)

[11] Network of Heads of the European Environment Protection Agencies, 2005. "The Contribution of Good Environmental Regulation to Competitiveness." http://www.eea.europa.eu/about-us/documents/prague_statement/prague_statement-en.pdf (accessed February 8, 2011).

[12] International Brotherhood of Boilermakers, *Boilermaker Labor Analysis and Installation Timing*, March 2005, EPA Docket OAR-2003-0053 (docket of the Clean Air Interstate Rule).

[13] November 3, 2010 letter from David C. Foerter, Executive Director of the Institute of Clean Air Companies, to Senator Thomas R. Carper (http://www.icac.com/files/public/ICAC_Carper_Response_110310.pdf (accessed February 8, 2011).

[14] December 8, 2010 WSJ "We're OK With the EPA's New Air Quality Regulations"

I hope the information in the Administrator's October 14, 2011 letter and my testimony today clarifies EPA's intentions and obviates the need for this legislation.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 14 2011

THE ADMINISTRATOR

The Honorable Debbie Stabenow
United States Senate
Washington, D.C. 20510

Dear Senator Stabenow:

Thank you for your inquiry on the status of EPA's Review of the National Ambient Air Quality Standards (NAAQS) for particulate matter. Particulate matter includes fine particles (known as PM2.5) and coarse particles (known as PM10). PM2.5 can come from fossil-fuel combustion, including power plants and motor vehicles, and wildfires and PM10 can come from construction and demolition activities, industrial operations, wildfires, and dust from unpaved roads. It is well established that particulate matter emissions are linked to premature death and numerous adverse health impacts.

We have been making steady progress in reducing emissions of particulate matter—both fine and coarse--in this country for more than two decades, improving the public health of Americans while the economy has continued to grow.

It is important that a standard for particulate matter be protective of the health of the public. Based on my consideration of the scientific record, analysis provided by EPA scientists, and advice from the Clean Air Science Advisory Council, I am prepared to propose the retention – with no revision - of the current PM10 standard and form when it is sent to OMB for interagency review.

This rulemaking package will also consider the latest scientific evidence and assessments for PM2.5. Again, thank you for the inquiry. It is EPA's responsibility to protect the health of all Americans – rural and urban - from known pollutants, including particulate matter. Please feel free to contact me if you have any questions, or your staff can contact Arvin Ganesan, Associate Administrator for the Office of Congressional and Intergovernmental Relations at (202) 564 – 4741.

Sincerely,

Lisa P. Jackson

Mr. WHITFIELD. Ms. McCarthy, thank you for your testimony.

You heard me say earlier that one of our concerns is that it doesn't make any difference what EPA decides or doesn't decide. Outside groups file lawsuits on a regular basis against EPA, and I think even you would admit and agree that frequently the courts' decisions determine what the interpretation of the EPA act is and what becomes law. So what our concern is, even though Lisa Jackson says no, are you convinced that a third-party environmental group or some other entity would not file a lawsuit?

Ms. MCCARTHY. Mr. Chairman, as you know, the Administrator has made her intention clear but certainly she can't preclude the rights and responsibilities she has under the Administrative Procedures Act and the right to listen to comment that is received. I would, however, say that the Administrator is basing her decision on a wealth of scientific information. I have the Integrated Science Assessment right here. She has taken the advice of the Clean Air Act Science Advisory Committee. She has listened to the staff recommendations and she believes that the law gives her deference in making these determinations in terms of what the science said and what——

Mr. WHITFIELD. But you do still understand our concern about—how many lawsuits are pending against the EPA right now?

Ms. MCCARTHY. There are a number of lawsuits pending but in the——

Mr. WHITFIELD. There is over 400, I believe, aren't there?

Ms. MCCARTHY. In the case of PM_{10}, the administration has acted a number of times, first under President Reagan, second under President Bush and this administration. We believe the science is clear and we believe that the Administrator's recommendation will hold true.

Mr. WHITFIELD. Well, see, we agree with you. We think the science is clear also and that is why we think that moving forward with legislation would remove any ambiguity whatsoever. So that is where we stand on that issue.

Now, as far as coarse particulate matter, does EPA have the authority to regulate coarse particulate matter now?

Ms. MCCARTHY. Yes, it does, Mr. Chairman.

Mr. WHITFIELD. And if the State implementation plan of a noncompliant area does not do so, EPA can step in. Is that correct?

Ms. MCCARTHY. Well, the EPA would have an obligation to step in if a State implementation plan didn't effectively address attainment in the way the Clean Air Act requires.

Mr. WHITFIELD. And how many States today are regulating coarse particulate matter because they are in nonattainment?

Ms. MCCARTHY. There are only a very few number of States that are regulating PM_{10}. It amounts to about 41 counties. It is a very small area of the country at this point in time.

Mr. WHITFIELD. Do you believe yourself from the evidence that you have read that coarse particulate matter does have an impact on a person's health?

Ms. MCCARTHY. I do. I do believe that, and I think the scientific evidence is quite clear, and we have evidence not only that coarse particles that are emitted in urban areas cause problems but there is clear scientific evidence that distinguishes what we call—what people have called rural dust, that that also causes significant public health concerns.

Mr. WHITFIELD. Well, if you do believe that even rural coarse particulate matter does impact health, why did you all decide not to strengthen the coarse particulate matter regulation?

Ms. MCCARTHY. Well, the Administrator has to establish a standard that is requisite to protect public health with an adequate margin of safety. The Reagan administration NAAQS standards set in 1987, 24 years ago, that was also revisited by the Bush administration and that is now being reconsidered by this administration, is actually a very sound standard. It is a standard that we believe is sufficient to protect public health. We believe that there is scientific uncertainty, which the Administrator has been looking at and considering that would lead her to retain the standard as it is proposed but certainly that information is rigorous enough to indicate that we should retain the current standard.

Mr. WHITFIELD. Now, the current PM_{10} standard is 150 micrograms per cubic meter. Is that correct? Is that the current standard?

Ms. MCCARTHY. Yes.

Mr. WHITFIELD. And then there is a threshold of 99 percentile. What does that actually mean?

Ms. MCCARTHY. Actually, that means—and that is one of the issues that has been most confusing because the Clean Air Act Science Advisory Committee actually proposed to change the standard and the form or actually ask the Administrator to consider a change in the standard and the form. The 99th percentile just really means that the area could be in nonattainment if they exceeded or had events that brought up the level of pollution to a certain amount just a few times a year and it would trigger National Ambient Air Quality Standards. If you lower that percentile, it means it needs to be more often and more frequent in order to trigger nonattainment.

Mr. WHITFIELD. OK. So the standard is 150 micrograms per cubic meter and the form is 99 percentile, so if you exceed that 1 percent of the time, you are OK, but if you exceed 2 percent of the time——

Ms. MCCARTHY. That is right.

Mr. WHITFIELD [continuing]. You violate?

Ms. MCCARTHY. That is right.

Mr. WHITFIELD. Well, my time is expired.

I recognize the gentleman, Mr. Rush, for 5 minutes.

Mr. RUSH. I want to thank you, Mr. Chairman, and Ms. McCarthy, I want to welcome you again to this subcommittee.

I got a little bit confused during the questioning from the chairman here. It seemed that we were discussing the Farm Dust Regulation Prevention Act but it seemed to me like he was talking about the EPA litigation prevention act, trying to keep EPA from being in court, being litigated in court, and I just don't know, do you think that is what our legislative powers to keep the EPA out of court?

Ms. MCCARTHY. Mr. Rush, I think that we actually are authorized to establish National Ambient Air Quality Standards. We certainly do that to the best of our ability based on the science and the law. Without question, it is often challenged, but without question, we win a considerable amount of time because we do our jobs well.

Mr. RUSH. And I agree with you, you do do your jobs quite well.

We heard earlier from Representative Noem that the scientific research shows a clear distinction between "urban dust" and "rural dust", and H.R. 1633 will make it simpler and easier for EPA by defining what nuisance dust is. Does the scientific research show a clear distinction between urban dust and rural dust? Also, does H.R. 1633 make it easier for EPA by defining nuisance dust as it is defined in this bill?

Ms. MCCARTHY. The definition of nuisance dust in this bill is very broad, and we are very concerned that it could have significant spillover impact in terms of our ability to regulate pollution from sources well beyond rural areas and well beyond agricultural sources, and we are concerned about that impact. I would also say that there are significant amounts of health studies, and they become more every time we look at the data and every time we visit that NAAQS that show that coarse particles, whether they are generated in the rural areas or they are generated in the urban areas have significant health consequences. They deserve to be regulated. The science demands it. The law requires it. EPA does that.

Mr. RUSH. Well, so let me just ask you, is the matter that is established in 1987 under the administration of President Reagan, has that standard been a threat to the farming communities in this Nation or has it been helpful?

Ms. MCCARTHY. We do not believe that there is any evidence that farming has been in any way significantly disrupted by any of the National Ambient Air Quality Standards. As you know, when we establish a NAAQS, it is a national standard. It is not targeted to a specific sector or a specific geographic area. I do know since 1987 when this was first proposed, there have been identified by States and local air quality districts when they implement in nonattainment areas, they implement their requirements to look at sources and identify what sources contribute to local health consequences. There have been times when they have worked with the USDA, they have worked with local farmers. They have identified best management practices, conservation measures that those farms can put into place that would reduce the amount of dust that they admit and still allow farming to continue unabated, and there have been instances where we have worked in a collaborative way to help that effort and that outcome, and it has been an enormously successful opportunity for all of us and to make sure that farming can continue, that it can continue unabated and we can work with them to reduce the amount of dust that is emitted and maintain the health standards that are required to protect public health.

Mr. RUSH. I only have a few more seconds. There seems to be—the 800-pound gorilla in the room seems to be the fear factor that is prevalent or that some have alluded to in previous testimony at today's hearing. Can you comment on what your understanding of the fear factor is and how great is it, how significant is it?

Ms. MCCARTHY. Well, we heard quite a while ago, Mr. Rush, that there was concern in the farming community on the basis of the recommendations by the Clean Air Act Science Advisory Committee that the Administrator consider a change in the standard. What was misunderstood was they were asking for both a change in the standard as well as the form. It actually would have resulted in fewer counties. It would have been a little bit more flexible, not so much sensitive to the high levels as much as averaging a little bit in a way that would have provided more flexibility. We did six listening sessions with the agriculture community immediately to explain to them what the process was, that it wasn't the recommendation of the staff, that the Administrator didn't make a decision yet, and we also talked about all of the work that we have done together on farm dust since 1987 and the collaborative nature of that process and the impacts that hasn't happened as a result. And we will continue that effort, and now that the Administrator has made it clear that she is not intending to propose a change in that standard, we are certainly hoping that it puts those fears to rest.

Mr. WHITFIELD. Mr. Shimkus, you are recognized for 5 minutes.

Mr. SHIMKUS. Thank you, and it is great to be with you, Assistant Administrator McCarthy.

Ms. MCCARTHY. Good to see you too.

Mr. SHIMKUS. We have a lot of fun here, and hopefully I will be kind and courteous, and again, I appreciate all the help that you have given in the past.

A couple issues. It is true that tier 4 engine regs, which has created additional costs for the agricultural community in diesel engines. Is that correct?

Ms. MCCARTHY. The tier 4 engine rules have been tightened and it does require that they look at particulate matter and other emissions——

Mr. SHIMKUS. So when you have diesel engines operating in rural America, you cannot say there is no effect on cost and production and operations when you have ratcheted down diesel engine emissions on the clean air applications.

Ms. MCCARTHY. The engines that we regulate are very large engines.

Mr. SHIMKUS. I mean, large engines are used in agricultural America.

Ms. MCCARTHY. I believe that I was referring to dust issues, so——

Mr. SHIMKUS. Well, I am just trying to——

Ms. MCCARTHY. There are definitely requirements in the farming community when you have large farms that are significant individual sources of pollution and they have to achieve the same kind of engine standards that——

Mr. SHIMKUS. Right. Production agriculture is large operations and large engines, so I just want to put that on the record. There is an effect. To say there is no effect, that really can't be stated.

You mentioned 41 counties that you know are in this, and I have one of the maps. There are other counties that continue to regulate particulate matter on their own. Is that correct? Virginia has fugitive dust regulations in Virginia?

Ms. MCCARTHY. I am sorry, Congressman. I am not familiar with that, but these are the requirements that are attributable to the Clean Air Act.

Mr. SHIMKUS. Just placing that into the record that there are States that are monitoring for dust in States on their own outside of the SIP and the requirements of the Clean Air Act.

The fear factor that my friend mentioned, one of your statements in your opening statement said "at this time." Using that terminology "at this time" creates a fear factor in rural America because tomorrow you may. The importance of legislation is to codify that to say not at this time, no more PM_{10}. In fact, the letter that the Administrator sent to Lisa Jackson says—I mean Lisa Jackson sent to Debbie Stabenow, "I am prepared to propose retention with no revision of the current PM standard and form when it is sent to OMB for interagency review." Now, the question is, so the Administrator must believe that PM standard as it is currently operated under the EPA, that it protects public health. Is that correct?

Ms. MCCARTHY. Yes, adequate with an adequate margin of safety.

Mr. SHIMKUS. And you would agree with that?

Ms. MCCARTHY. Yes.

Mr. SHIMKUS. Good. I want to have that on the record because that is part of this whole debate of the concern of ratcheting it down. You heard during the opening questioning, and just the difference of concentration. A lot of our experience here on the committee is focusing on concentrated amounts that affect human health. Do you agree that concentrated particulate matter can be harmful to human health?

Ms. MCCARTHY. I believe that exposure to particulate matter can be——

Mr. SHIMKUS. In any concentration or in certain concentrations?

Ms. MCCARTHY. It depends on both. It depends on the concentration as well as the size of the particle.

Mr. SHIMKUS. But you just said PM_{10} is safe.

Ms. MCCARTHY. No, no, I said that the National Ambient Air Quality Standard was appropriate as a safeguard for public health protection. That does not mean that I think that it is safe for exposures at all levels. Certainly our goal is to achieve the National Ambient Air Quality Standard that is required under the Clean Air Act. I am making no statement about my independent knowledge of health consequences associated with exposures beyond that.

Mr. SHIMKUS. Thank you, Mr. Chairman. My time is expired.

Mr. WHITFIELD. Yes, sir. At this time I will recognize the gentleman from California, Mr. Waxman, for 5 minutes.

Mr. WAXMAN. Thank you, Mr. Chairman.

Ms. McCarthy, we heard from some people that the Republicans want to make commonsense changes to the Clean Air Act but in reality, I fear they may be making some radical changes and you said in your opening statement the bill does far more than prevent a change in the coarse particulate standard. We believe it could result in far-reaching damage to the bedrock public health protections in the Clean Air Act.

Now, this includes a broad definition of so-called nuisance dust that would be exempt from EPA regulation. The bill lists several examples of what falls under the category of nuisance dust including "earth moving." The bill doesn't limit these farms. Ms. McCarthy, could the operations of a large, open pit mine fall under the category of earth moving?

Ms. McCarthy. Yes.

Mr. Waxman. In fact, during the next panel, we are going to hear from the Coarse Particulate Matter Coalition, an industry association that supports this bill. One of the coalition's members is Kennecott Copper, which operates one of the world's largest copper mines. That company would like to expand its mine with fewer air pollution controls. So that is one way this bill goes beyond farms.

The bill also includes "windblown dust" in the definition of what constitutes nuisance dust. Ms. McCarthy, could all particulate air pollution be viewed as windblown dust and does the bill distinguish because particulate matter from a farm or from a factory?

Ms. McCarthy. It could, and there is no such distinction in the bill that you have asked me to comment on.

Mr. Waxman. So the dust is undefined in the bill and commonly applies to small particles, so all particulate air pollution might fall under this phrase?

Ms. McCarthy. It might.

Mr. Waxman. The bill further includes as nuisance dust particulate matter that is generated from "activities typically conducted in rural areas." This is extremely broad and could capture a range of industrial activity that often occurs in less populated areas. Ms. McCarthy, what activities could be covered by this definition?

Ms. McCarthy. The generation of power at a power plant, large industrial sources like steel plants, gravel operations, mining operations, driving diesel buses to school, diesel engines. A variety of the same kind of sources that you would find in rural areas can be found in urban areas as well.

Mr. Waxman. The bill is so broadly written that it could prevent EPA from ensuring that school buses don't spew dangerous air pollution in rural communities across the country. I think that is not common sense, I think that is ridiculous.

Ms. McCarthy, given these broad definitions, how could this bill affect EPA's ability to limit emissions of particle pollution from all sources, not just farms, and what are the public health implications?

Ms. McCarthy. This bill, if passed as written, could have serious implications on the major tenets of the Clean Air Act. It could preclude us from regulating PM fines as well as coarse. It could preclude us from regulating NOx and SO2 emissions from power plants, from mining operations, from large industries, from mobile sources. It could have serious unintended consequences.

Mr. Waxman. If the Republicans want to reduce or eliminate existing controls on particulate pollution from industrial activities, they probably have the votes to do that, but if so, let us debate that on the merits. Let us not pretend that this bill is about stopping EPA from imposing new regulations on farms.

I hear this all the time, and I have heard it all my career. I have got a simple bill, totally common sense. It only deals with a problem that is on people's minds. And then you look at the language and you find out that it is much broader and has a lot of consequences that we presume are unintended but they might even be intended. So I think we have to look at legislation as it is written, not as how people would say it is intended because their intentions are not part of the law that EPA enforces. Isn't that correct, Ms. McCarthy? Does EPA enforce intentions of the authors or the language of the bill?

Ms. MCCARTHY. We have to enforce the language of the bill, Mr. Waxman.

Mr. WAXMAN. Even if Congress intended something else?

Ms. MCCARTHY. Often times, yes.

Mr. WAXMAN. I yield back my time. Thank you, Mr. Chairman.

Mr. WHITFIELD. At this time I will recognize Mr. Terry of Nebraska for 5 minutes.

Mr. TERRY. Thank you.

Ms. McCarthy, while listening here and some of the discussion about whether or not we should even be having this discussion and EPA has already said they won't enforce the PM_{10} on agriculture was the statement I think Lisa Jackson made when I asked her about that and after she answered, "dust happens" as the answer, I thought that was rather flippant and insulting to our farmers. But the reality is, the fear exists and I do think it is real, not only because there was a recommendation to regulate dust on the farm and the roads but there has been a history with this EPA. For example, in the State Nebraska, under a proposed rule for CSAPR, Nebraska was not even given reasonable notice or opportunity to revise its implementation plan to react to requirements of the 2006 PM2.5 NAAQS, and it wasn't until August 2011 that Nebraska became aware that a level of emission control necessary to mitigate interstate transport.

So the point is, those of us in Nebraska have already gone through a situation where the EPA said basically you weren't going to be covered and then to our surprise we were covered, which resulted in a lawsuit. So there is a history with the EPA of making promises and then breaking them.

Now, in regard to the specific of nuisance dust and PM_{10}, the chairperson, Chairman Whitfield, hit on this and it has always been my saying that we are only one lawsuit away from you being forced to regulate dust particulates from farming activities or the roads, and in fact, there is a history with the EPA of their partners, Sierra Club and Natural Resources Defense Council, filing lawsuits and then you entering into a settlement agreement.

So with that fear that I have that that is the ultimate plan here is to have one of your partners file suit, therefore it is not Lisa Jackson's or this Administrator's decision but the court's decision. I used the fictional because that is what happens. You enter into a settlement agreement. So my question to you is, to your knowledge, has Lisa Jackson, you or anyone with the EPA had any discussions with Sierra Club, the NRDC or any other environmental group about filing lawsuits on nuisance dust from farming activities and dirt roads?

Ms. MCCARTHY. Absolutely not.

Mr. TERRY. No discussions?

Ms. MCCARTHY. Absolutely not.

Mr. TERRY. No emails?

Ms. MCCARTHY. Absolutely not.

Mr. TERRY. OK.

Ms. McCARTHY. Mr. Terry, we can talk about the cross-state rule another time. I would really like that opportunity. But what I will say is that this whole issue arose because people were concerning about the Administrator going out and making a change in a standard that had never been brought to her. The rule has not been proposed. She has indicated what she intends to propose. It would go through a public process and then it would be finalized, and without doubt, it will be challenged. There is ample opportunity for this body to see whether the Administrator is actually going to live up to the letter that she wrote and whether or not the science and what the final rule looks like.

Mr. TERRY. Listening to the discussions that have occurred so far, you would agree that basic combining harvest or plant would create dust that would then in that instance violate the PM_{10}?

Ms. McCARTHY. Actually, that is not how it works. We actually rely on monitoring technologies, not modeling from individual sources, to establish nonattainment areas, and we don't have farm dust standards.

Mr. TERRY. But we already have an example in Virginia where the monitoring said that at that particular time of the truck driving over the road violated the standard, and so the reality here is that we are only one lawsuit away from you being forced to enforce the rule on farming activities, and my time is up.

Mr. WHITFIELD. Thank you. At this time I will recognize the gentleman from Massachusetts, Mr. Markey, for 5 minutes.

Mr. MARKEY. I thank you, Mr. Chairman, very much.

In 1999, the public was outraged to learn that Congressman Tony Schnell had introduced bill 602P to allow the United States Postal Service to impose a 5-cent tax on every single email that was sent. Email action alerts were sent out with alarming instructions to read this if you intend to stay online and continue using email. Congressional offices were flooded by frustrated constituents. The issue even got raised at campaign debates where candidates predictably came out in opposition to this misguided scheme. There was just one problem. None of it was real. There was no bill 602P. There wasn't even a Congressman Schnell in the House of Representatives. The whole thing was an Internet hoax, and everyone should have just moved on.

But Republicans forged ahead. They introduced the Internet Access Charge Prohibition Act of 1999, apparently because only by passing actual legislation to prohibit the goals of the imaginary legislation authored by a fictitious Congressman could we prevent these horrible surcharges from being imposed in the real world, but it didn't just do that, that piece of legislation. Then it went on further to actually include provisions which would have hurt poor and rural Americans to get phone service.

So I am reminded of that legislation as we consider this bill to prevent the regulation of farm dust. Just like the email tax hoax, there is no plan to regulate farm dust any more than there is to regulate fairy dust. There is no attempt to accomplish that goal. Let me say that again: EPA has made it very clear that the so-called plan to regulate farm dust is a myth, but that hasn't stopped the Republicans from moving forward with this legislation, and just like the email tax bill, this bill goes well beyond its stated intent because it also blocks EPA from settings standards for the dirty soot that gets spewed out of coal-fired power plants, incinerators, refineries and chemical plants. That is the real agenda, not to stop something that isn't going to happen but to then switch in the middle of their legislation to move over to something that really would protect the public from public health hazards. This bill should be relegated to the dust bin of similar urban legends along with Congressman Schnell's imaginary email tax bill.

Ms. McCarthy, can you tell me whether EPA has any new plan to specifically regulate farm dust?

Ms. MCCARTHY. We do not.

Mr. MARKEY. Isn't it true that this legislation goes beyond a simple prohibition on farm dust regulations by also preventing EPA from regulating any dust that is generated by activities that are typically conducted in rural areas and any dust that can be blown in the wind?

Ms. MCCARTHY. That is true, Congressman.

Mr. MARKEY. Even if that dust is actually coming from coal-fired power plants or other industrial sources?

Ms. MCCARTHY. There is a grave concern that that is part of what the bill might do.

Mr. MARKEY. And finally, since I am sure that many little girls all over America care about this deeply, can you commit to me that EPA will never try to regulate fairy dust or pixie dust? Because if not, we may just want to amend the legislation in order to protect us against that threat which could be posed by the EPA or other regulatory agencies seeking to move into other fictional areas such as the legislation which is being considered here by this committee.

Ms. MCCARTHY. After we look at the complete scientific review, yes.

Mr. MARKEY. You will make sure that you do not under any circumstances? OK. Thank you.

So I thank the chair very much and I yield back the balance of my time.

Mr. WHITFIELD. At this time I recognize the gentleman from Texas, Dr. Burgess, for 5 minutes.

Mr. BURGESS. Thank you, Mr. Chairman, and I thank the gentlelady for being here with us today and answering our questions. You brought a lot of material with you there at your left hand. What is that compendium of documents?

Ms. MCCARTHY. This is the Integrated Science Assessment for Particulate Matter that has recently been prepared that would underpin the decision of the Administrator in terms of moving forward with updating both the PM_{10} and the PM2.5 standards.

Mr. BURGESS. And there are health studies included in that?

Ms. MCCARTHY. This is actually a peer-reviewed summary of peer-reviewed scientific literature that would have an impact and concern relative to particulate matter.

Mr. BURGESS. So are there available then health studies that have found that rural dust is a health concern?

Ms. MCCARTHY. There are many, yes.

Mr. BURGESS. And will you leave those behind with us?

Ms. MCCARTHY. Absolutely.

Mr. BURGESS. Has the EPA conducted a quantitative health risk assessment of coarse particulate matter?

Ms. MCCARTHY. The EPA has not used that tool on coarse particulate matter, no.

Mr. BURGESS. Is the reason for that because you don't have enough scientific evidence?

Ms. MCCARTHY. The reason for that is because coarse particulate matter, we don't have the kind of monitoring data that we have available relative to other pollution so it doesn't seem like it would be an appropriate tool to use, but we certainly have enough studies that look at coarse particles so that a linkage has been made in terms of the emissions of those particles and health impacts that would result.

Mr. BURGESS. Let me ask you this. There was another subcommittee of Energy and Commerce that asked Administrator to share with that subcommittee any studies that show a causal or associative relationship between fine particulate matter and deaths at levels below what the EPA calls the lowest measured level. Now, apparently that request has yet to be honored so can I ask you today that you will endeavor to help us receive those materials that Administrator Jackson promised another subcommittee and this full committee?

Ms. MCCARTHY. I will assure you that we will provide all of the health studies that are the basis of these decisions.

Mr. BURGESS. We will get you the details on that, but I think it is important, and I appreciate your willingness to help us gather the information.

Let me just ask you a question that is a little bit off topic for a moment. Now, it seems like Administrator Jackson and the EPA are very concerned about asthma and asthma deaths. Is that a fair statement?

Ms. MCCARTHY. Yes.

Mr. BURGESS. It seems like almost every hearing we have on almost anything, asthma deaths are brought up as one of the metrics.

Ms. MCCARTHY. Well, air pollution generally the health impacts of most concern are usually respiratory or cardiovascular, yes.

Mr. BURGESS. Well, one of the things that is just really perplexing to me, I am an asthma patient. I am on a long-term medication, and I also use a rescue inhaler. Now, occasionally, like anybody else, I will forget my medication. I travel a lot. And it is reassuring to know that I can go into any pharmacy in the country and buy Primatene Mist over the counter. I don't have to go to the emergency room. I don't have to get a doctor's prescription for it. I can just simply get the medication when needed and self-administer and avert a problem. But Primatene Mist is not going to be available after January 1st, is it?

Ms. MCCARTHY. That is correct. If the FDA ban continues, yes, that is true.

Mr. BURGESS. Well, it is not just the FDA. I mean, EPA is playing a role in this as well because of the propellant, the vehicle, the CFC that actually propels the medication.

Ms. MCCARTHY. Certainly we have been working closely with FDA for many years on this issue, yes.

Mr. BURGESS. But the fact remains that because of the EPA, this medication is no longer going to be available to me after January 1st.

Ms. MCCARTHY. Well, the fact remains, I think that just to clarify, this is an issue where there are CFCs that actually are used in these inhalers, both in the ones you get by prescription and there is one remaining that is over the counter that has an impact on ozone layer, and as part of our obligation with the Montreal Protocol——

Mr. BURGESS. I would submit that the volume of CFC that is released into the atmosphere from the contingent of asthma patients that uses an occasional rescue inhaler that they buy at 2:00 in the morning is vanishingly small and not responsible for the hole in the ozone layer. And I will tell you, my own comfort at 2:00 in the morning takes vastly more precedent than any potential theoretical enlargement of the hole in the ozone layer. I just have to say, here is an example of, we come in here and we talk about in lofty terms that we want to prevent asthma deaths, and yet at the same time the EPA and the FDA in concert are acting to keep the medication out of the hands of the patients who so desperately need them. It is irony to the nth degree, and I thank the chairman for allowing me the indulgence.

Ms. MCCARTHY. I am happy to have the discussion and bring back the dialog relative to FDA's determination as to whether or not this inhaler is an essential use.

Mr. BURGESS. Look, you are not going to get me defending the FDA. I promise you that. But both Federal agencies are playing a role in this, and the fact remains, January 1st, patients all over the country are not going to be able to get access to their medication. If we are concerned about asthma, we would fix that.

Mr. WHITFIELD. Well, thank you, Dr. Burgess, and appreciate your raising that issue of sometimes unintended consequences.

At this time I recognize the gentleman from Louisiana, Mr. Scalise, for 5 minutes.

Mr. SCALISE. Thank you, Mr. Chairman. I appreciate you having this hearing, and I want to thank my two colleagues that were presenting the legislation that we are discussing today. I strongly support the legislation and what we are trying to do is I think bring some certainty to an area where is tremendous uncertainty, and unfortunately, the uncertainty has cost jobs. It has cost a lot of businesses, what we are seeing over and over from businesses in my district and other districts. When you talk to colleagues all around the country, you hear the same thing over and over. It is not only the uncertainty but the actual threats from real regulations or potential regulations coming down from agencies like the EPA that are impeding their ability to create jobs, that are impeding their ability to invest in their business, and I am looking forward to the next panel because we are going to hear from some people who are actually on the ground dealing with this, and while unfortunately some of my colleagues on the other side want to make fun of this and, you know, want to tell jokes about fairy dust, this is about real American jobs that are being lost because of these regulations, you know, and yet some people just want to make fun of that. They think it is funny that people in middle America, people in rural America are looking at these regulations that are coming down and looking at the threats.

I want to read you to some—this is off of EPA's Web site. You know, you are talking about some potential diseases coming, respiratory irritation, lung function reduction, asthma, inflamed damage to lungs, aggravated lung disease, permanent lung damage, and I know you rattled off some other things in your opening testimony. I am not talking about dust particles. I am talking about the ozone ruling. These were all the same things that EPA said were threats that you need to have this ozone ruling, and even President Obama said you are out of control. He pulled it back. And so when you come before our committee and no matter what bill it is, if it is Cement MACT or Boiler MACT or dust or ozone, you rattle off the same things over and over about, you know, if we don't allow you to go forward with this or we bring a bill to prevent some radical regulation from EPA, it is going to send more people to the hospital and kids are going to get asthma and, you know. Lung disease, you know, you have been beating that drum for everything, and even the President said that you are out of line. And so I hope, you know, when you all come and oppose these commonsense bills to just put certainty in place, to prevent some regulations from coming in that aren't there now that would put people out of business, when you keep saying the same things over and over about threats to health, I mean, are you saying that the President doesn't support public health because the President said you went too far.

Ms. MCCARTHY. I guess I am a little confused because I think this bill was initiated because the Administrator actually made it clear that she doesn't intend to propose a change in the PM_{10} standard at this time.

Mr. SCALISE. But then you should be OK with the bill because the bill just says that you won't go forward with it. You are saying you are not going to do it. The thing is, you have said you are not going to do it on other areas, not you personally but EPA has done this in the past, and the chairman brought this up. The chairman of the committee talked about these consent decrees, these consent agreements that some of these outside groups will come and sue the EPA, and we have seen it with energy production, we have seen it with other things, and then you all go into an agreement with them. It is not a law, it is not even a rule, and yet you can go into these consent agreements and all of a sudden there is a new standard on the books that nobody agreed to. It wasn't Members of Congress that agreed to it, the elected representatives of the people, it was some backroom deal cut either by a judge or, even worse, some outside group who is a specialist interest that got together with you all and you all came up with some kind of new agreement that everybody has got to comply with, and it puts people out of business. It kills jobs in this country. And we are just trying to say we are going to issue a preemptive strike before you all are forced in that position. You might not even want to do it, but if they bring you to court and all of a sudden some judge gives some ruling, everybody in America, rural Americans, all these farmers have to comply with this stuff. And I am trying to say, before you cost any more jobs, because you have already cost jobs, whether you agree with it or not. We can bring in business owner after business owner and job creators that can tell you thousands of jobs in each industry that have been lost because of EPA regulations. We are just trying to say enough is enough before this new one comes out. Let us stop it. What is so wrong about that when you look at all the outside groups who—you are looking at over 100 farmer groups, U.S. Chamber, National Association of Manufacturers, all these farm groups. I mean, I saw a story from the Illinois Farm Bureau. I mean, do you think they are just making up stuff? Do you think they are having imaginations about fairy dust, as it was suggested? I mean, these are people that on the ground trying to just create jobs and they are scared to death of what is coming down the pike from EPA.

Ms. MCCARTHY. Congressman, the language in this bill goes far beyond the interest that you have expressed in making sure that the Administrator's decision to not propose to change the——

Mr. SCALISE. All right. So if you don't like the language, then what you are saying is, you are OK with some kind of prohibition, you don't like this——

Ms. MCCARTHY. All I am suggesting is that this law is not necessary.

Mr. SCALISE. I think a lot of hard-working farmers out there would——

Ms. MCCARTHY. And the only other——

Mr. SCALISE [continuing]. Disagree, but I yield back. I am out of time.

Mr. WHITFIELD. The gentleman's time is expired.

I recognize the gentleman from Colorado, Mr. Gardner, for 5 minutes.

Mr. GARDNER. Thank you, Mr. Chairman, and thank you, Ms. McCarthy for your time here today. I truly appreciate it.

We have talked a lot today, EPA currently has a PM_{10} standard, dust standard. Is that correct?

Ms. MCCARTHY. Yes.

Mr. GARDNER. And that basically means 150 microns per cubic meter of air at the 99th percentile. Is that what it means?

Ms. MCCARTHY. That is correct.

Mr. GARDNER. Which means you get about 3 days over the standard average over a 3-year period and you are still in compliance. Is that correct?

Ms. MCCARTHY. Yes.

Mr. GARDNER. OK. Does that standard apply across the country?

Ms. MCCARTHY. Yes.

Mr. GARDNER. Are there areas of the country that are in nonattainment for PM_{10}?

Ms. MCCARTHY. There are.

Mr. GARDNER. And where are these areas?

Ms. MCCARTHY. Well, I can certainly point them out to you. For the most part, they are in the western part of the United States. I would certainly be happy to share this with you. These——

Mr. GARDNER. Southern California, Arizona?

Ms. MCCARTHY [continuing]. Are the 45 areas. That is right.

Mr. GARDNER. Thank you. Do any of these nonattainment areas have any agriculture production?

Ms. MCCARTHY. Yes, many of them do. I think there is—it is primarily around urban areas where we monitor we most closely.

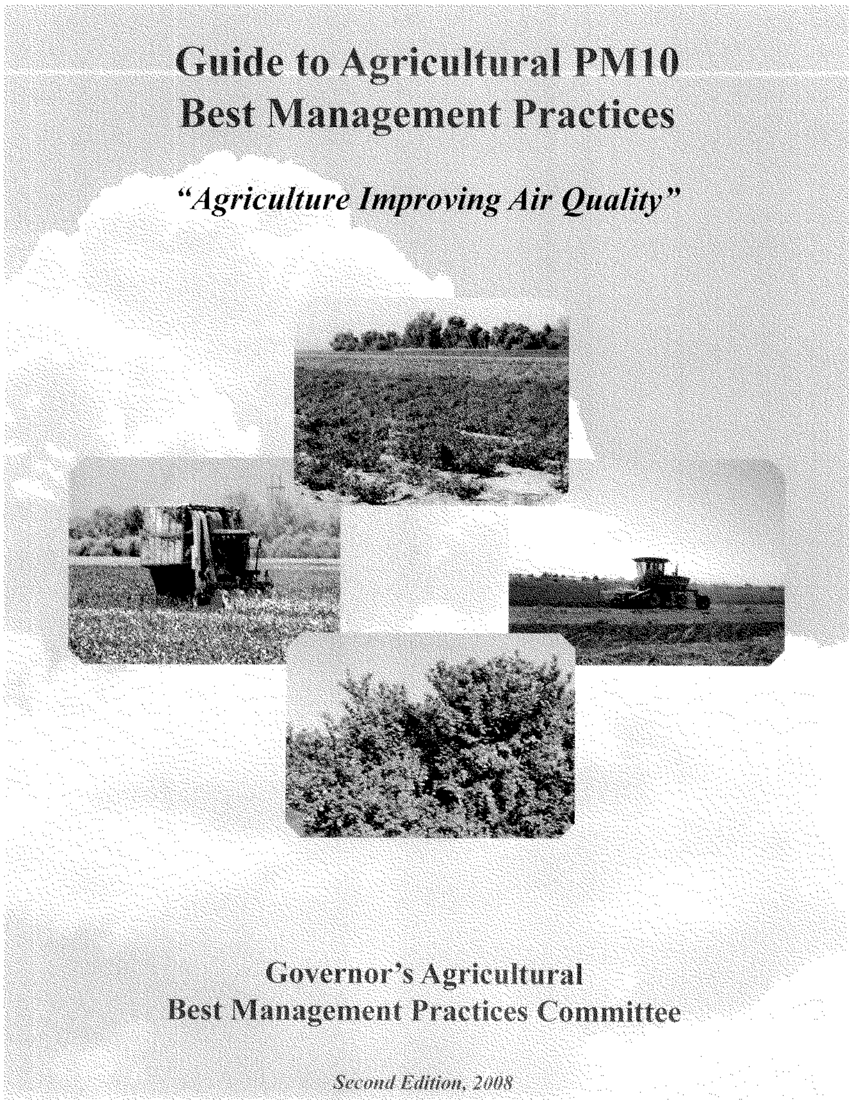
Mr. GARDNER. What requirements are placed on those producers if they farm in a nonattainment area?

Ms. MCCARTHY. It all depends. They may not be seen as contributing significantly to the nonattainment, in which case there is no obligation. In areas where they have been identified, which represent a couple of counties that I know about, there are a number of best management practices that have been developed with USDA and the farming community. They tend to choose what is most appropriate off that list and implement those measures.

Mr. GARDNER. Well, I am glad you mentioned that, because in fact, since there is nobody on this committee from Arizona, I do have where some of the nonattainment areas are. I would like to ask that these documents be submitted to the record, Arizona's mandatory BMPs, best management practices, for rural crop agriculture and mandatory BMPs for livestock producers.

Mr. WHITFIELD. Without objection.

[The information follows:]



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Where can I learn more?

If you do not know whether your agricultural operation resides within the PM10 Nonattainment Area, or if you have questions regarding compliance or specific components of the agricultural PM10 general permit, contact:

Arizona Department of Agriculture
Agricultural Consultation & Training
1688 W. Adams St.
Phoenix, AZ 85007
602-542-3484
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www.azda.gov/ACT/AirQuality.htm

Agua-Fria New River NRCD
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www.nrcd.org/aguafria/

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Introduction

Why is the Guide to Agricultural PM10 Best Management Practices needed?

The Federal Clean Air Act requires that emissions from all significant sources in areas not meeting the national ambient air quality standards be controlled through effective programs. Through a study conducted by the Arizona Department of Environmental Quality (ADEQ) in 1995, agricultural activities were identified as a source that contributes to the production of particulate matter (PM).

PM10 is particulate matter that is 10 micrometers or less in diameter (as compared to a human hair that is about 70 micrometers). These particles are very small and can invade the natural defense mechanism of the human respiratory tract, penetrating deep into the lungs. Consequently, PM10 can cause a wide variety of harmful health effects, especially for children, the elderly, and people with pre-existing respiratory or cardiovascular disease.

With this threat to human health, coupled with repeated violations of the federal health standard for PM10, public agencies and industry groups in the Phoenix metropolitan area have developed and are implementing programs to help the area meet the federal clean air standards for PM10.

The intent of this guide is to:

- Provide agricultural operators with information and guidance on how to effectively implement individual best management practices (BMPs).
- Inform the general public about the efforts Maricopa County farmers are implementing to improve air quality.
- Provide Natural Resource Conservation Districts (NRCD) and other farm organizations with background information regarding the agricultural PM10 general permit.
- Provide regulators with information and guidance on how to determine compliance with the agricultural PM10 general permit.

Why was the agricultural PM10 general permit created?

The Phoenix metropolitan area has not met the Federal Clean Air Act Standards for PM10 since the Clean Air Act was revised in 1990. On June 10, 1996, the U.S. Environmental Protection Agency (EPA) redesignated the Moderate PM10 Nonattainment Area to Serious, resulting in the need for emission reduction programs for previously unregulated sources, such as unpaved roads, unpaved parking lots, vacant lots and agriculture. On August 3, 1998, EPA issued a federal implementation plan (FIP) addressing these unregulated sources. The FIP included requirements to develop and enforce control measures for these source categories.

To address agriculture's contribution to PM10, the Governor's Agricultural Best Management Practices Committee was created by law in 1998 (Arizona Revised Statutes (A.R.S.) §49-457). The Committee's charge was to develop an agricultural PM10 general permit that would include controls on agricultural operations. The Committee was to identify BMPs that focused on feasible, effective and common sense practices that minimized negative impacts on local agriculture. In the original program, the agricultural PM10 general permit required that at least one BMP be implemented to control PM10 for each of the following three categories: tillage and harvest, non-cropland and cropland. In 2007, the Arizona State Legislature passed Senate Bill 1552, changing the number of BMPs required from one to **two** BMPs per category. The Committee is composed of five local farmers, the Director of ADEQ, the Director of Arizona's Department of Agriculture, the State Conservationist for the Natural Resources Conservation Service (NRCS), the Dean of the University of Arizona College of Agriculture and Life Sciences, and a soil taxonomist from the University of Arizona. After A.R.S. §49-457 was developed and adopted, EPA removed the portion of the Federal Implementation Plan for agriculture on June 29, 1999 [64 Federal Register p. 34726].

Who must comply with the agricultural PM10 general permit?

Any farmer who farms more than 10 contiguous acres of land located within the Maricopa PM10 Nonattainment Area and Maricopa County Portion of Area A (reference map insert) must comply with the agricultural PM10 general permit.

What does the farmer have to do?

- Implement and maintain at least **two** approved BMPs (described later in this document) for each of the three categories: tillage and harvest, non-cropland and cropland.
- Keep records detailing the BMPs selected for each category. The commercial farmer may document the practice on the sample BMP agricultural PM10 permit record or develop a record that includes the information required by the agricultural PM10 general permit. The commercial farmer must make available the record to the ADEQ director within two business days of notice to the farmer.
- The Committee recommends additional record keeping if implementation of the BMPs is not easily visible. Examples of additional record keeping include, but are not limited to, photographs, purchase records, receipts, job sheets, contractor invoices, employee timesheets, logs, narrative statements, individual farm policies, statements of understanding signed by employees or contractors, and training records.
- No fee is associated with the agricultural PM10 general permit.

When must the agricultural PM10 general permit be implemented?

A farmer engaged in agricultural activities before June 10, 2000 must comply with the agricultural PM10 general permit by December 31, 2001. A commercial farmer who engages in agricultural activities after December 31, 2000, has 18 months to comply with the agricultural PM10 general permit.

Legislation enacted in 2007 requires that all farmers engaged in agricultural activities must comply with the agricultural PM10 program by December 31, 2007, as revised by the Governor's Agricultural BMP Committee.

What would happen if I do not comply with the agricultural PM10 general permit?

If the ADEQ director determined that a commercial farmer is not in compliance with the agricultural PM10 general permit, the following three-stage process would occur:

1. If the farmer has not previously been subject to an agricultural general permit related compliance order, the farmer would be required to submit a plan to the local NRCD. The plan must specify the BMPs that the farmer would use to comply with the general permit.
2. If the farmer has previously been subject to an agricultural PM10 general permit related compliance order, the farmer would be required to submit a plan to ADEQ that specifies the BMPs that the farmer would use to comply with the general permit.
3. If the farmer failed to comply with the plan submitted to NRCD and ADEQ, the director of ADEQ may revoke the agricultural PM10 general permit and require the farmer to obtain an individual fee based permit.

At each stage, the farmer would have the opportunity for a hearing.

Where does the agricultural PM10 general permit apply?

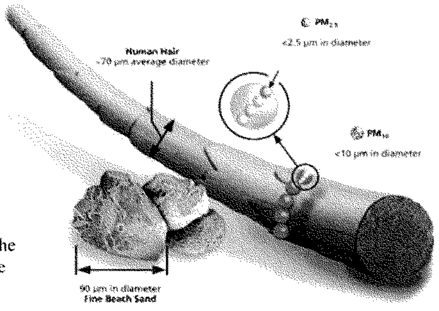
Any agricultural operation greater than 10 contiguous acres within the Maricopa PM10 Nonattainment Area and Maricopa County Portion of Area A (reference map insert), except on tribal lands, must comply with the agricultural PM10 general permit.

Soils, PM10 and Air Quality

Soils consist of various particles including mineral matter, organic matter, air, and water. These particles vary in shape and size, ranging from large drops of liquid to microscopic dust particles. The mineral particles in soil are classified as sand, silt, or clay. Soils containing high amounts of clay coupled with large silt particles have a greater likelihood of generating PM10.

When the natural soil structure is manipulated or disturbed by tillage, animals, weather, or vehicular traffic, the structure can be broken apart from larger pieces, or clods, into smaller pieces. This process significantly increases the potential for soil particles to become suspended in the air. Further manipulation of the soil increases the chance for smaller particles to become PM10.

Comparison of PM sizes.



Air quality problems occur when the amount of particles released into the air increase in concentration. Large concentrations of PM10 could potentially violate one of the federal air quality standards, or National Ambient Air Quality Standards (NAAQS), set for various air pollutants. The current NAAQS standard for PM10 is 150 micrograms/cubic meter averaged over 24 hours. This standard is a concentration by weight measure. PM10 emissions can also cause visibility impairment (e.g., Brown Cloud) as well as health impacts. The small particles can pass through nostril hairs and enter the lungs, penetrating deep into the lung tissue where it is lodged and not easily, if ever, expelled.

Two meteorological events have the potential to increase the impacts from high concentrations of PM10: high winds and stagnation. Conditions for both of these events can occur in the Phoenix area, one occurring predominantly in the warmer season, the other in the cooler season. Warm season high wind events are generally short (less than one hour) and are the result of the downdrafts from monsoon thunderstorms. The cool season events are longer (six to 12 hours) and are the result of strong pressure gradients associated with a trough or a cold front. An inversion is a region in the atmosphere where the temperature increases with height. The presence of an inversion creates a very stable atmosphere and leads to very little mixing of the air, trapping pollutants close to the ground. An inversion is also produced whenever radiation from the surface exceeds the amount of radiation from the sun – commonly at night or in the winter when the angle of the sun is very low in the sky. Some of the best management practices outlined in this booklet address how to lower PM10 so these events do not increase PM10 concentrations.

Disturbed soil that is broken down into smaller particles can also become a soil conservation problem. Many of the best management practices outlined in this booklet are already used to prevent soil erosion. Other best management practices address ways of limiting PM10 from associated farming activities such as adjoining dirt roads or road shoulders on farmland. The manipulation or disturbance of soil is inherent to the practice of farming. Best management practices are not designed to eliminate particle emissions 100 percent, but they are designed to reduce the activities that can lead to the increased concentration of PM10.

As a result of discussions between the EPA, Arizona Department of Environmental Quality, and the Arizona Department of Agriculture, the Arizona State Legislature in 1999 enacted legislation with the full support of the Arizona agriculture community to create and implement a Best Management Practice Program. The Agricultural Best Management Practice Program allows growers a wide range of choices to reduce PM10 emissions within the established Maricopa PM10 Nonattainment Area and Maricopa County Portion of Area A (reference map insert).

The Arizona Legislature has defined a BMP for the Maricopa PM10 Nonattainment Area and Maricopa County Portion of Area A (reference map insert) as a technique verified by scientific research that is practical, economically feasible and effective in reducing PM10 on a case by case basis from a regulated agricultural activity. The following section summarizes the BMPs approved by the Governor's Agricultural Best Management Practices Committee to reduce PM10 for each of the three agricultural categories: tillage and harvest, non-cropland and cropland. A wide range of variation in soils and cropping systems exists within the Maricopa PM10 Nonattainment Area and Maricopa County Portion of Area A (reference map insert), which can only be addressed by a wide range of flexible and adaptable management practices. Most methods for controlling PM10 emissions parallel the controls for wind erosion. These methods are based on principles that contain or slow soil movement from fields. Not all of the BMPs will work equally well on every farm because of variations in wind, soils, cropping systems, moisture conditions and, in some cases, the management approaches of individual growers. Such factors should be considered by the individual farmer to ensure he or she implements effective BMPs. This guide represents steps in helping farmers reduce PM10 emissions from farmlands located within the Maricopa PM10 Nonattainment Area and Maricopa County Portion of Area A (reference map insert).

Category 1: Tillage and Harvest

Any mechanical practice that physically disturbs cropland or crops on a commercial farm.

Best management practices for use during tillage and harvest

Cessation of Night Tillage
Chemical Irrigation
Combining Tractor Operations
Equipment Modification
Green Chop
Integrated Pest Management
Limited Activity during a High-Wind Event
Multi-Year Crop
Planting Based on Soil Moisture
Precision Farming
Reduced Harvest Activity
Reduced Tillage System
Tillage Based on Soil Moisture
Timing of a Tillage Operation
Transgenic Crops

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Cessation of Night Tillage

Rule Definition

"Cessation of Night Tilling" means the discontinuance of night tilling on high pollution advisory (HPA) days during stagnant air conditions. See night tilling rule definition.

Purpose

Cessation of night tillage between 2:00 a.m. and 8:00 a.m. to decrease the concentrations of PM emissions at night when stagnant air conditions with little if any vertical mixing of the air occurs and a high pollution advisory has been given.

Suggestions for Implementation

An individual farm policy should be developed to ensure that no tillage activities occur during stagnant air conditions on HPA days. Notification of HPAs are broadcast by noon of the day prior to the HPA in the media, by e-mail, and by text message. Employees should receive training in implementing the farm policy.

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Chemical Irrigation

Rule Definition

"Chemical Irrigation" means applying fertilizer, pesticide, or other agricultural chemicals to cropland through an irrigation system.

Purpose

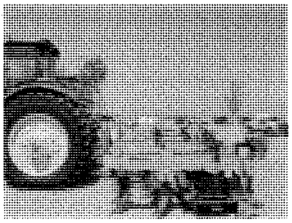
Chemical irrigation reduces the number of passes across a field with tractors, sprayers, fertilizer applicators and machinery. Reducing the number of field operations reduces the emissions associated with those activities.

Suggestions for Implementation

- All product application recommendations should be followed to ensure proper implementation.
- The field operations eliminated should be documented to demonstrate the implementation of the practice.

Combining Tractor Operations

Rule Definition



"Combining Tractor Operations" means performing two or more tillage, cultivation, planting, or harvesting operations with a single tractor or harvester pass.

Purpose

Combining tractor operations reduces the number of passes or trips that a tractor, implement, harvester or other farming support vehicle makes across a field or unpaved surface, thereby reducing the amount of soil disturbed.

Suggestions for Implementation

- Combining tractor operations is most effective if implemented during the time of year when PM10 is most likely to be produced.
- Applying fertilizer and herbicide in a single pass.
- Cultivating and fertilizing in a single pass. Using specialized machinery to bury stalks make new furrows in a single pass.
- Combining multiple heavy tillage operations in a single pass, for example, pulling a ring roller behind a disc.

Equipment Modification

Rule Definition

"Equipment Modification" means modifying agricultural equipment to prevent or reduce particulate matter generation from cropland.

Purpose

Modifying and maintaining an existing piece of agricultural equipment or purchasing new equipment to prevent PM10 from becoming airborne during tillage and harvest operations, which helps reduce PM10 and soil erosion.

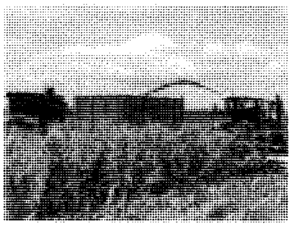
Examples of Equipment Modification

- Shields or deflectors that redirect fan or vehicle exhaust sideways or upward. This can prevent PM10 from becoming airborne because exhaust is not blowing downward on the soil surface.
- Dust shrouds around tillage implements and harvesters.
- Spray bars that emit a mist to knock down PM10.

Green Chop

Rule Definition

"Green Chop" means the harvesting of a forage crop without allowing it to dry in the field.



Purpose

Green chop reduces multiple equipment passes in-field as well as reduces soil disturbance and soil compaction.

Examples of Green Chop

- Alfalfa
- Winter forage
- Silage corn

Integrated Pest Management

Rule Definition

"Integrated Pest Management" means the use of a combination of techniques including organic, conventional and biological farming practices.

Purpose

Integrated pest management creates beneficial insect habitat that reduces the use of herbicides/ pesticides, thereby reducing the number of passes for spraying. It also reduces soil compaction and the need for additional tillage.

Examples of Integrated Pest Management

- Monitoring crop for pests to accurately and effectively apply control measures.
- Incorporate biological practices into farming operation to reduce need for spraying.

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Limited Activity during a High-Wind Event

Rule Definition

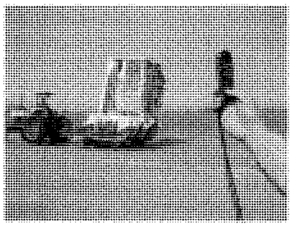
"Limited activity during a High-Wind Event" means performing no tillage or soil preparation activity when the measured wind speed at 6 feet in height is more than 25 mph at the commercial farm site.

Purpose

Because this BMP falls within the tillage and harvest category, it also applies during harvest time. Wind speed, temperature and relative humidity affect the distance that PM10 travels and the ability for PM10 to be suspended in the air. Limiting activity during a high-wind event will reduce the transport of PM10. Reducing farm operations during a high wind event, as well as when the wind speed is less than 25 mph, can significantly help reduce PM10 emissions.

Suggestions for Implementation

- A device to measure wind speed should be available at the commercial farm site.
- An individual farm policy should be developed to ensure that no tillage or soil preparation activities occur when the wind speed reaches 25 mph.
- Employees and family members should receive training in implementing the farm policy.
- Subscribe to the Dust Action Forecast issued by ADEQ. Notification of Dust Action Forecasts are broadcast by mid-morning of the day prior to the high-wind event.



Multi-Year Crop

Rule Definition

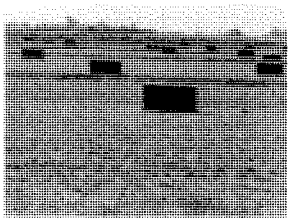
"Multi-Year Crop" means a crop, pasture, or orchard that is grown, or will be grown, on a continuous basis for more than one year.

Purpose

Surface covers, such as crops, pasture and orchards that are grown and maintained for a long duration, protect the soil surface from erosive winds. The longer a crop or cover is protecting the soil surface, the less time the surface is susceptible to wind erosion.

Examples of Multi-Year Crops include

- Alfalfa
- Citrus
- Roses
- Livestock pastures
- Nuts (Pecans)
- Sod



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Planting Based on Soil Moisture

Rule Definition

"Planting Based on Soil Moisture" means applying water to soil before performing planting operations.

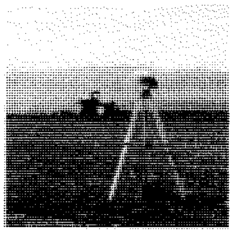
Purpose

- Planting based on soil moisture reduces PM10 during the planting operation and is effective from the time of planting until crop establishment. Planting based on soil moisture is one of the most efficient practices to reduce PM10 between planting and crop emergence. Moisture causes soil to crust and therefore PM10 is not easily transported into the air.

Suggestions for Implementation

- Care should be taken to avoid over compaction of the soil, which could result in additional tillage operations.
- Irrigation should be applied as soon after soil preparation for planting as possible. After watering, a thin crust develops on the soil surface, which stabilizes it until planting.
- The time between bed lifting, irrigation and planting should be minimized as much as possible.
- Use the soil moisture "feel method" to determine adequate soil moisture. See the Natural Resource Conservation Service Publication #1619 "Estimating Soil Moisture by Feel and Appearance." This publication is available at all NRCD offices.

Precision Farming



Rule Definition

"Precision Farming" means using GPS to precisely guide farm equipment in the field.

Purpose

Precision farming reduces overlap and allows operations to occur during inclement weather conditions and at night thereby generating less PM.

Examples of Precision Farming

- Install overlap reduction technology
- Pass markers
- Variable rate application technology

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Reduced Harvest Activity

Rule Definition

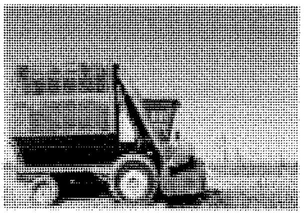
"Reduced Harvest Activity" means reducing the number of harvest passes using a mechanized method to cut and remove crops from a field.

Purpose

Any time an operation takes place in a field, the soil structure can be modified and some PM10 could be released into the air. Reducing the number of harvest activities can keep the soil structure intact and reduce PM10.

Suggestions for Implementation

An example of reduced harvest activity is the elimination of a harvest or rood pass from a cotton harvest. More PM10 is emitted during a normal cotton harvest season because the process requires several harvest passes to remove most of the crop from the plant. The rood process produces a significant amount of PM10 because of the nature of the operation.



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Reduced Tillage System

Rule Definition

"Reduced Tillage System" means reducing the number of tillage operations used to produce a crop.

Purpose

Any tillage operation in a field can modify the soil structure and possibly release PM10 into the air. Reducing the number of tillage activities can maintain the soil structure and help reduce PM10.

Suggestions for Implementation

- Minimum tillage system*
- Mulch tillage system*
- Reduced tillage system*

*Consult NRCS Standard and Specifications, 329 and 344, Residue Management. This document is available at all NRCD offices.

Tillage Based on Soil Moisture

Rule Definition

"Tillage Based on Soil Moisture" means applying water to soil before or during tillage, or delaying tillage to coincide with precipitation.

Purpose

Moisture binds soil particles and helps reduce the amount of PM10 released into the air. Fine dry soil can easily erode with increased wind speeds. Sufficient moisture levels can be achieved by irrigating before tillage or tilling after rain. Moisture can also allow large soil clods to form, after tillage, which reduces wind erosion.

Suggestions for Implementation

- Fields should be irrigated to the depth of proposed cut prior to soil disruption, or tillage should be conducted to coincide with precipitation.
- The application of moisture or the date of tillage that coincided with precipitation should be documented.
- The soil moisture "feel method" should be used as a way to determine adequate soil moisture. See the Natural Resource Conservation Service publication #1619 "Estimating Soil Moisture by Feel and Appearance". This publication is available at all NRCD offices.

Timing of a Tillage Operation

Rule Definition

"Timing of a Tillage Operation" means performing tillage operations at a time that will minimize the soil's susceptibility to generate PM10.

Purpose

Adjusting the time of tillage operations can minimize the amount of time the soil surface is susceptible to wind erosion and generation of PM10. When a field's surface is smooth, dry, and consists of finer grained soil particles, the field is most susceptible to wind erosion, resulting in PM10.

Some examples of timing of tillage operations to reduce PM10 generation include:

- Reducing time between leveling (land planing) and bedding, which is when the beds act as miniature windbreaks. For example, a cotton production system where fields are tilled in the fall, land planed, and then bedded, would be less susceptible to wind erosion and PM10.
- Leaving the field surface with large soil clods for as long as possible prior to preparation of seed beds.

Transgenic Crops

Rule Definition

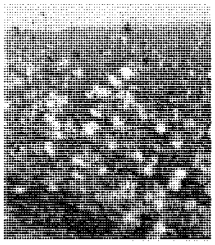
"Transgenic Crops" means the use of plants that are genetically modified.

Purpose

Transgenic crops reduce need for tillage or cultivation operations, as well as reduces soil disturbance. Can also reduce the number of chemical applications.

Examples of Transgenic Crops

- Genetically altered seed
- Nematode resistant rootstock



CATEGORY II: Non-Cropland

Any commercial farm land that:

- *Is no longer used for agricultural production,*
- *Is no longer suitable for production of crops,*
- *Is subject to a restrictive easement or contract that prohibits use for the production of crops, or includes a private farm road, ditch, ditch bank, equipment yard, storage yard or well head.*

Best management practices for use on non-cropland

Access Restriction
Aggregate Cover
Artificial Wind Barrier
Critical Area Planting
Manure Application
Reduce Vehicle Speed
Synthetic Particulate Suppressant
Track-out Control System
Tree, Shrub or Windbreak Planting
Watering

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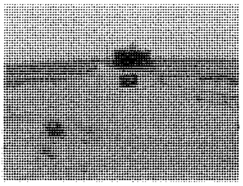
Access Restriction

Rule Definition

"Access Restriction" means restricting or eliminating public access to non-cropland with signs or physical obstruction.



Purpose

Reducing the number of trips driven on agricultural aprons and access roads can reduce that area's susceptibility to PM10.

Examples of methods to restrict access include, but are not limited to:

- Installing physical barriers such as gates, fencing, posts, signs, shrubs, trees or other physical obstructions to prevent or control access to the area.
- Installing "no trespassing" or "limited use area" signs.

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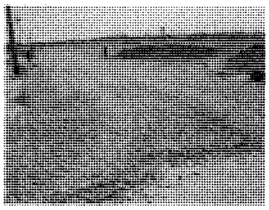
Aggregate Cover

Rule Definition

"Aggregate Cover" means gravel, concrete, recycled road base, caliche or other similar material applied to non-cropland.



Purpose

Applying an aggregate cover to unpaved farm roads, parking areas and canal banks helps reduce the amount of soil particles exposed to the surface, thus helping to reduce the generation of PM10. Aggregate cover acts as a surface barrier to erosive forces like wind or vehicle traffic.

Suggestions for Implementation

- The aggregate should be one inch or larger in diameter.
- The aggregate should be applied a minimum of four inches deep.
- The aggregate material should be clean, hard and durable.

Artificial Wind Barrier

Rule Definition

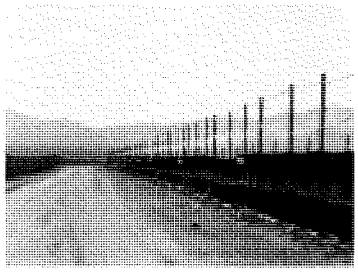
"Artificial Wind Barrier" means a physical barrier to the wind.

Purpose

Artificial wind barriers disrupt the erosive flow of wind over unprotected areas thus helping to reduce PM10.

Suggestions for Implementation

- Continuous board fences, burlap fences, crate walls, bales of hay and similar material can be used to control air currents and blowing soil.
- Barriers should be aligned across the prevailing wind direction. While 90 degrees or perpendicular is preferred, benefits can still be realized when barriers are aligned as close to perpendicular as possible.
- The distance of 10 times the barrier height is considered the protected area downwind of the barrier.



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Critical Area Planting

Rule Definition

"Critical Area Planting" means using trees, shrubs, vines, grasses, or other vegetative cover on non-cropland.

Purpose

Critical area planting helps control soil movement and protect the soil surface when adequate cover does not exist. Ground covers reduce dust and wind erosion by shielding the soil with vegetation and anchoring the soil with roots. This practice applies to field aprons, equipment parking areas, turn rows, canal banks, canal excavation spoil piles and bare areas where vegetation is difficult to establish by usual planting methods.

Suggestions for Implementation

Critical area planting consists of any vegetative cover that maintains more than 60 percent ground cover.

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Manure Application

Rule Definition

"Manure Application" means applying animal waste or biosolids to a soil surface.

Purpose

Applying manure to maintain or improve chemical and biological condition of the soil can help reduce wind erosion and PM10.

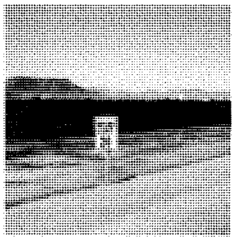
Suggestions for Implementation

- If the application or storage of manure is near a water source, precautions should be taken to prevent accidental leakage, spillage or runoff that will result in undesirable effects on soil, water and plants.
- Caution should be used when applying manure to ensure that state and local regulations are not violated.
- Caution should be used when certain manures are applied as they can volatilize and contribute to odor and ammonia emissions.
- Manures should be incorporated as quickly as possible to reduce odor and ammonia emissions, and to preserve nutrient value if the area is to be cropped in the future.

Reduce Vehicle Speed

Rule Definition

"Reduce Vehicle Speed" means operating farm vehicles or farm equipment on unpaved private farm roads at speeds not to exceed 20 mph.



Purpose

Reduced speeds can decrease the amount of PM10 generated by vehicles or equipment on unpaved farm roads.

Examples of methods to reduce vehicle speed include, but are not limited to:

- Posting speed limit signs.
- Informing all employees, contractors and sub-contractors of speed limits.
- Placing signs in all farm vehicles stating the speed limits on farm roads.
- Installing speed bumps.

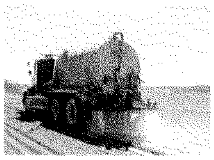
Synthetic Particulate Suppressant

Rule Definition

"Synthetic Particulate Suppressant" means a manufactured product such as lignosulfate, calcium chloride, magnesium chloride, an emulsion of a petroleum product, an enzyme product, and polyacrylamide that is used to control particulate matter.

Purpose

Synthetic particulate suppressants provide a surface barrier or bind soil particles together to retard PM10 on unprotected areas, such as unpaved roads, rights-of-way and abandoned fields.



Examples of synthetic particulate suppressant include, but are not limited to:

- Calcium chloride (CaCl)
- Soybean feedstock (SBF) processing byproducts
- Calcium lignosulfonate (lignin)
- Polyvinyl acrylic polymer emulsion (PVA)
- Polyacrymide (PAM)
- Emulsified petroleum resin

Differences in traffic type and volume, soil types, roadway surface characteristics and topography between sites requiring dust control can cause product performance to vary. Consult the NRCD office or a dust control contractor for specific recommendations. All products should be applied strictly in accordance with manufacturers' specifications.

Track-out Control System

Rule Definition

"Track-out Control System" means a device to remove mud or soil from a vehicle before the vehicle enters a paved public road.

Purpose

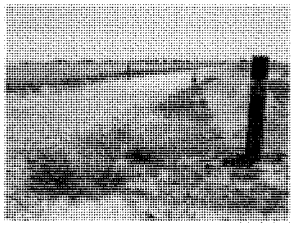
Using a track-out control system helps remove mud and soil from the tires of farm equipment and vehicles before they enter a paved public road, where the mud or soil can be crushed into fine particles and easily suspended in the air by passing vehicles.

Suggestions for Implementation

Some examples of track-out control systems are:

- Grizzly - a device similar to a cattle guard, which is used to dislodge mud, dirt or debris from the tires and undercarriage of equipment and vehicles prior to leaving a farm.
- Gravel pad - a pad of crushed stone, coarse gravel or recycled road base located at the point of intersection of a paved public roadway and a farm entrance.
  It is recommended that:
  a) The stone or gravel is one inch or larger in diameter.
  b) The gravel pad is applied a minimum of four inches deep.
  c) The gravel pad is the full width of the farm entrance.
  d) The gravel pad is a minimum of 50 feet long.
- Pavement – an area of asphalt, concrete or similar material applied to a farm road at the intersection of a paved public roadway and a farm entrance.
  It is recommended that:
  a) The pavement is the width of the farm road.
  b) The pavement is a minimum of 100 feet long from the point of intersection with a paved public roadway.

The farm entrance should be maintained in a condition that will prevent tracking of mud and soil onto paved public roads. The farmer should conduct periodic inspections, maintenance, re-application of gravel and cleaning of paved access road surfaces to accomplish track-out control.



Tree, Shrub, or Windbreak Planting

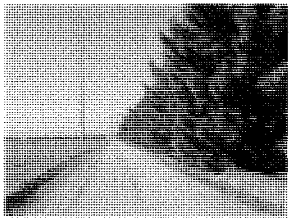
Rule Definition

"Tree, Shrub, or Windbreak Planting" means providing a woody vegetative barrier to the wind.

Purpose

Barriers placed perpendicular to the wind direction can reduce wind speeds by changing the pattern of airflow over the land surface, which helps reduce wind erosion and PM10.

Suggestions for Implementation



- The distance of 10 times the barrier height is considered the protected area downwind of the barrier.
- Single row plantings are most popular in field windbreaks because they use less water and occupy the least amount of land area for the amount of protection derived.
- Recommended species for planting can be obtained at all NRCD offices.
- The planting should be done at a time and manner to ensure survival and growth of selected species.
- Moisture conservation or supplemental watering should be provided for plant establishment and growth, as well as the use of drought tolerant species.
- Windbreaks should be aligned across the prevailing wind direction. While 90 degrees or perpendicular is preferred, benefits can still be realized when windbreaks are aligned as close to perpendicular as possible.
- The interval between windbreaks should be determined using current approved wind erosion technology, available at all NRCD offices.

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Watering

Rule Definition

"Watering" means applying water to non-cropland.

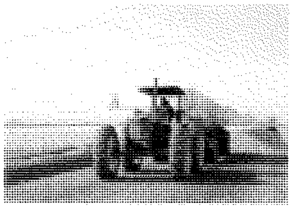
Purpose

Applying water from a truck, tractor or other portable spray system to bare soil surfaces, such as unpaved roadways and equipment yards where high traffic areas exist, can help reduce PM10. Watering the soil surface tends to compact the soil so that it is not dispersed into the air.

Suggestions for Implementation

Watering is effective during peak usage times, such as silage harvest time.

- Apply water so that the surface is visibly moist.



CATEGORY III: Cropland

Land on a commercial farm that:

- *Is within the timeframe of final harvest to plant emergence,*
- *Has been tilled in a prior year and is suitable for crop production, but is currently fallow, or*
- *Is a turn-row.*

Best management practices for use on cropland

Artificial Wind Barrier
Cover Crop
Cross-Wind Ridges
Cross-Wind Strip-Cropping
Cross-Wind Vegetative Strips
Integrated Pest Management
Manure Application
Mulching
Multi-Year Crop
Permanent Cover
Planting Based on Soil Moisture
Residue Management
Sequential Cropping
Surface Roughening
Transgenic Crops
Tree, Shrub, or Windbreak planting

Artificial Wind Barrier

Rule Definition

"Artificial Wind Barrier" means a physical barrier to the wind.

Purpose

Artificial wind barriers disrupt the erosive flow of wind over unprotected cropland fields thus helping to reduce PM10.

Suggestions for Implementation

- Continuous board fences, burlap fences, crate walls, bales of hay and similar material can be used to control air currents and blowing soil.
- Barriers should be aligned across the prevailing wind direction. While 90 degrees or perpendicular is preferred, benefits can still be realized when barriers are aligned as close to perpendicular as possible.
- The distance of 10 times the barrier height is considered the protected area downwind of the barrier.

Cover Crop

Rule Definition

"Cover Crop" means plants or a green manure crop grown for seasonal soil protection or soil improvement.

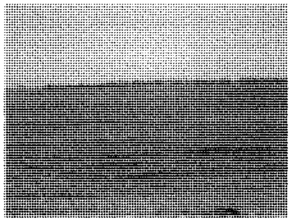
Purpose

Cover crops help control soil movement and protect the soil surface between crops. Cover crop reduces wind erosion by shielding the soil with vegetation and anchoring the soil with roots.

Suggestions for Implementation

It is recommended that:

- Cover crops consist of any vegetative cover that maintains more than 60 percent ground cover.
- Short-term cover be grown between major crops. Plants are then tilled into the soil prior to or during major crop planting.
- Longer-term cover may be maintained by periodic mowing to maintain at least 60 percent cover.
- Specific information on cover crops can be obtained from the Cooperative Extension Service or the NRCD office.



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Cross-Wind Ridges

Rule Definition

"Cross-Wind Ridges" means soil ridges formed by a tillage operation.

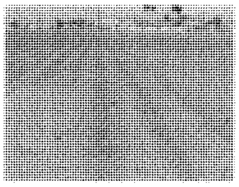
Purpose

Ridges formed by tillage operations create protective windbreaks that disrupt the erosive forces of high winds.

Suggestions for Implementation

It is recommended that:

- Ridges formed by tillage or planting should be aligned across the prevailing wind direction.
- While 90 degrees or perpendicular is preferred, benefits can still be realized with ridges as close to perpendicular as possible.
- If ridges deteriorate and become ineffective due to weathering or erosion, they should be reestablished, unless doing so would damage a growing crop.
- This practice is best adapted on soils, which are stable enough to sustain effective ridges, such as clayey, silty and sandy loam soils. It is not well adapted on unstable soils, such as sands, loamy sands and certain organic soils.



Cross-Wind Strip-Cropping

Rule Definition

"Cross-Wind Strip-Cropping" means planting strips of alternating crops within the same field.

Purpose

Growing crops or managing residue as a protective cover in strips across the prevailing wind direction can break the effects of high wind events.

Suggestions for Implementation

It is recommended that:

- Cross-wind strip-cropping system consists of at least two crop or residue cover alternating strips.
- Strip widths should be at least 25 feet but no more than 330 feet.
- Strips should be aligned across the prevailing wind direction. While 90 degrees or perpendicular is preferred, benefits can still be realized when the strips are oriented as close to perpendicular as possible.
- Protective cover includes, but is not limited to a growing crop, grasses, legumes, grass-legume mixtures, standing stubble or tilled residue with enough surface cover to provide protection.

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Cross-Wind Vegetative Strips

Rule Definition

"Cross-Wind Vegetative Strips" means herbaceous cover established in 1 or more strips within the same field.

Purpose

Herbaceous cover creates a protective windbreak that disrupts the erosive forces of high winds, especially during critical wind erosion periods.

Suggestions for Implementation

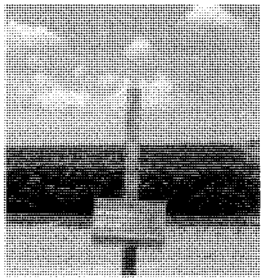
It is recommended that:

- Herbaceous cover should be composed of perennial or annual vegetation, growing or dead.
- Strips consist of at least one row of plants, providing the porosity can be achieved with a single row that contains no gaps.
- When two or more rows are required to achieve the required porosity and to avoid gaps, the rows should be spaced no more than 36 inches apart.
- Annual vegetation strips be composed of more than one row.
- Strips designed for this purpose have a minimum expected height of two feet.
- Strips designed for this purpose achieve a minimum porosity of 40 to 50 percent.
- Spacing between strips (not within row) not exceed 12 times the expected height of the herbaceous cover.
- Spacing between strips be adjusted to accommodate widths of farm equipment to minimize partial or incomplete passes.

Integrated Pest Management

Rule Definition

"Integrated Pest Management" means the use of a combination of techniques including organic, conventional and biological farming practices.



Purpose

Integrated pest management creates beneficial insect habitat that reduces the use of herbicides/ pesticides, thereby reducing the number of passes for spraying. It also reduces soil compaction and the need for additional tillage.

Examples of Integrated Pest Management

- Monitoring crop for pests to accurately and effectively apply control measures.
- Incorporate biological practices into farming operation to reduce need for spraying.

Manure Application

Rule Definition

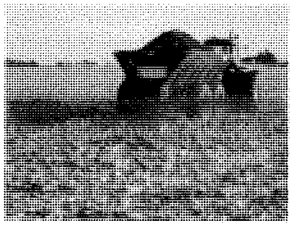
"Manure Application" means applying animal waste or biosolids to a soil surface.

Purpose

Applying manure to maintain or improve chemical and biological condition of the soil can help reduce wind erosion and PM10.

Suggestions for Implementation

- If the application or storage of manure is near a water source, precautions should be taken to prevent accidental leakage, spillage or runoff that will result in undesirable effects on soil, water and plants.
- Caution should be used when applying manure to ensure that state and local regulations are not violated.
- Caution should be used when certain manures are applied as they can volatilize and contribute to odor and ammonia emissions.
- Manures should be incorporated as quickly as possible to reduce odor and ammonia emissions, and to preserve nutrient value if the area is to be cropped in the future.



Mulching

Rule Definition

"Mulching" means applying plant residue or other material that is not produced on site to a soil surface.

Purpose

Adding a protective layer to the soil surface reduces soil movement in high wind events.
This practice also conserves soil moisture, which can reduce surface movement of soil.

Suggestions for Implementation

It is recommended that:

- This practice can be used after low residue producing crops, like cotton, are harvested.
- Materials for mulching are acquired as waste products from other enterprises.
- These include, but are not limited to, wood bark, chips, shavings, and saw dust; food processing wastes; and small grain straw/chaff.
- Mulches are applied by blowers, hydro applicators, disk type straw punchers and spreaders.
- When small grain straw is used, spread at least 4,000 pounds straw per acre, distribute evenly and partially incorporate into the soil.
- When wood fibers are used, spread at least 2,000 pounds per acre or achieve 80 percent cover.

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Multi-Year Crop

Rule Definition

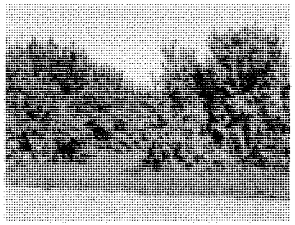
"Multi-Year Crop" means a crop, pasture, or orchard that is grown, or will be grown, on a continuous basis for more than one year.

Purpose

Surface covers, such as crops, pasture and orchards, that are grown and maintained for a long duration, protect the soil surface from erosive winds. The longer a crop or cover is protecting the soil surface, the less time the surface is susceptible to wind erosion.

Examples of Multi-Year Crops are:

- Alfalfa
- Citrus
- Roses
- Livestock pastures
- Nuts (Pecans)
- Sod



Permanent Cover

Rule Definition

"Permanent Cover" means a perennial vegetative cover on cropland.

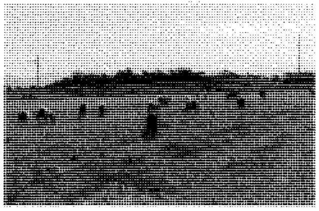
Purpose

Maintaining a long-term (perennial) vegetative cover on cropland that is temporarily not producing a major crop protects the soil surface from erosive winds.

Suggestions for Implementation

It is recommended that:

- Perennial species of grasses and/or legumes be used to establish at least 60 percent cover.
- When perennial species are used, maintenance by periodic mowing or swathing/baling is encouraged.
- Specific information on permanent cover types can be obtained from the Cooperative Extension Service or all NRCD offices.



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Planting Based on Soil Moisture

Rule Definition

"Planting Based on Soil Moisture" means applying water to soil before performing planting operations.

Purpose

Planting based on soil moisture reduces PM10 during the planting operation and is effective from the time of planting until crop establishment. Planting based on soil moisture is one of the most efficient practices to reduce PM10 between planting and crop emergence. Moisture causes soil to crust and therefore PM10 is not easily transported into the air.

Suggestions for Implementation

- Care should be taken to avoid over compaction of the soil, which could result in additional tillage operations.
- Irrigation should be applied as soon after soil preparation for planting as possible. After watering, a thin crust develops on the soil surface, which stabilizes the soil until planting
- The time between bed lifting, irrigation and planting should be minimized as much as possible.
- Use the soil moisture "feel method" to determine adequate soil moisture. See the Natural Resource Conservation Service publication #1619 "Estimating Soil Moisture by Feel and Appearance." This publication is available at all NRCD offices.

Residue Management

Rule Definition

"Residue Management" means managing the amount and distribution of crop and other plant residues on a soil surface.

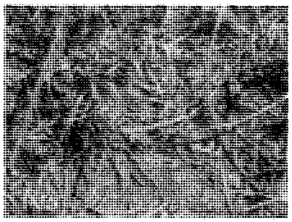
Purpose

Leaving crop and other plant residues on the soil surface can protect the soil between the time of harvest of one crop and emergence of a new crop, thus helping reduce wind erosion and the generation of PM10.

Suggestions for Implementation

Many different residue management systems have been developed. Some examples include:

- Reduced tillage systems, such as mulch-till, which partially incorporate surface residues and involve no plowing.
- No-till, this involves planting directly into the soil without any alteration to the seedbed. One example is planting a new crop directly into the grain stubble.
- Soil protection by crop residues can be increased by leaving residues on the soil surface as long as possible (e.g. by delaying tillage operations until just before planting).



It is recommended that:

- Stubble be left standing at six inches or more.
- Tillage be limited during this period to undercutting tools, such as blades, sweeps or deep tillage implements, such as a ripper or subsoiler.
- Loose residue be uniformly distributed on the soil surface.
- Residues from previous crops be left to maintain 60 percent ground cover.
- Specific information on determining small grain residue equivalents can be obtained from the Cooperative Extension Service or all NRCD offices.
- Consult NRCS Standard and Specification for Residue Management, # 329 and 344. This document is available at all NRCD offices.

Sequential Cropping

Rule Definition

"Sequential Cropping" means growing crops in a sequence that minimizes the amount of time bare soil is exposed on a field.

Purpose

By reducing the amount of time bare soil is exposed, sequential cropping helps reduce the window of time that the cropland is susceptible to PM10 erosion.

Some examples of sequential cropping include:

- Planting a winter grain crop between final harvest of a cotton crop and the planting of the next cotton crop.
- Close rotations of vegetable crops.

Suggestions for Implementation

It is recommended that:

- The amount of time bare soil is exposed be limited to 30 days or less.
- Rotations be provided for acceptable substitute crops in case of crop failure or shift in planting intentions for weather related or economic reasons.

Surface Roughening

Rule Definition

"Surface Roughening" means manipulating a soil surface to produce or maintain clods.

Purpose

The formation of clods helps disrupt the erosive force of the wind over an unprotected soil surface. Soil clods can be formed by tillage implements under appropriate soil moisture conditions.

Suggestions for Implementation

- Not all soils are able to form clods. Review the local soil survey or contact the NRCD office to help determine a specific field's soil type.
- Caution should be used to determine the most opportune time to roughen the soil surface while considering the tillage needed prior to planting, crop to be grown and irrigation water management needs (surface roughening can dry the upper soil profile more rapidly than not disturbing the soil).

Transgenic Crops

Rule Definition

"Transgenic Crops" means the use of plants that are genetically modified.

Purpose

Transgenic crops reduce the need for tillage or cultivation operations, as well as reduces soil disturbance. Can also reduce the number of chemical applications.

Examples of Transgenic Crops

- Genetically altered seed
- Nematode resistant rootstock

Tree, Shrub, or Windbreak Planting

Rule Definition

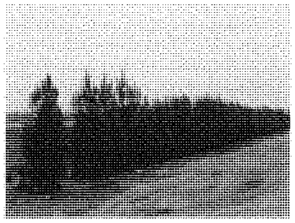
"Tree, Shrub, or Windbreak planting" means providing a woody vegetative barrier to the wind.

Purpose

Barriers placed perpendicular to the wind direction can reduce wind speeds by changing the pattern of airflow over the land surface, which helps to reduce wind erosion and PM10.

Suggestions for Implementation

- The distance of 10 times the barrier height is considered the protected area downwind of the barrier.
- Single row plantings are most popular in field windbreaks because they use less water and occupy the least amount of land area for the amount of protection derived.
- Recommended species for planting can be obtained at all NRCD offices.
- The planting should be done at a time and manner to insure survival and growth of selected species.
- Moisture conservation or supplemental watering should be provided for plant establishment and growth, as well as the use of drought tolerant species.
- Windbreaks should be aligned across the prevailing wind direction. While 90 degrees or perpendicular is preferred, benefits can still be realized when windbreaks are aligned as close to perpendicular as possible.
- The interval between windbreaks should be determined using current approved wind erosion technology available at all NRCD offices.



Agricultural Best Management Practices General Permit Record

The following is an example of a form that you can use or duplicate. You are not required to use this form.

Name of commercial farmer______________________________ Date________________

Mailing or physical address of the commercial farm

____ Phone________________

____

City____________________State______Zip____________ Email________________

Selected Best Management Practices. A commercial farmer must implement at least ***TWO*** practices from each category.

CATEGORY I: Tillage & Harvest

- ☐ Cessation of Night Tilling
- ☐ Chemical Irrigation
- ☐ Combining Tractor Operations
- ☐ Equipment Modification
- ☐ Green Chop
- ☐ Integrated Pest Management
- ☐ Limited Activity during High-wind Events
- ☐ Multi-year Crop
- ☐ Planting Based on Soil Moisture
- ☐ Precision Farming
- ☐ Reduced Harvest Activity
- ☐ Reduced Tillage System
- ☐ Tillage Based on Soil Moisture
- ☐ Timing of Tillage Operation
- ☐ Transgenic Crops

Notes:

CATEGORY II: Non-Cropland

- ☐ Access Restriction
- ☐ Aggregate Cover
- ☐ Artificial Wind-barrier
- ☐ Critical Area Planting
- ☐ Manure Application
- ☐ Reduce Vehicle Speed
- ☐ Synthetic Particulate Suppressant
- ☐ Track-out Control System
- ☐ Tree/Shrub/Windbreak Planting
- ☐ Watering

Notes:

CATEGORY III: Cropland

- ☐ Artificial Wind-barrier
- ☐ Cover Crop
- ☐ Cross-wind Ridges
- ☐ Cross-wind Strip-cropping
- ☐ Cross-wind Vegetative Strip
- ☐ Integrated Pest Management
- ☐ Manure Application
- ☐ Mulching
- ☐ Multi-year Crop
- ☐ Permanent cover
- ☐ Planting Based on Soil Moisture
- ☐ Residue Management
- ☐ Sequential Cropping
- ☐ Surface Roughening
- ☐ Transgenic Crops
- ☐ Tree/Shrub/Windbreak Planting

Notes:

Signature:____

Stakeholders and Collaborating Partners

Arizona Cotton Growers Association
Arizona Department of Agriculture
Arizona Department of Environmental Quality
Arizona Farm Bureau Federation
Arizona Nursery Association
Maricopa Association of Governments
Maricopa County Air Quality Department
Maricopa County Farm Bureau
Natural Resource Conservation Districts
USDA Agricultural Research Service
USDA Natural Resources Conservation Service
US Environmental Protection Agency Region IX
University of Arizona - College of Agriculture and Life Sciences
University of Arizona - Cooperative Extension, Maricopa County
Western Growers Association

Livestock Best Management Practices to Reduce PM_{10} Emissions

The Phoenix metropolitan area has not met the federal Clean Air Act standards for PM_{10} emissions since the Act was revised in 1990. There are different levels of nonattainment based on the extent to which the Environmental Protection Agency's (EPA) National Ambient Air Quality Standards are exceeded. Under current law, any farmer who farms more than ten contiguous acres of land located within the Maricopa County PM_{10} nonattainment area and the portion of Maricopa County in Area A is required to implement PM_{10} regulations. The regulations are incorporated into the EPA-approved Statewide Implementation Plan (SIP). The SIP establishes measures that will be used to reduce emissions and attain acceptable air quality standards in general.

Recently passed legislation requires the Agricultural Best Management Practices Committee to adopt PM_{10} control rules by June 30, 2010, for animal agriculture that will apply to regulated areas in Maricopa County. The legislation defined "Regulated area" to include "any other PM_{10} particulate non-attainment area established in this state on or after June 1, 2009.The Committee consists of fifteen members from various sectors of the agricultural community, including dairy. The members are appointed by the Governor and are responsible for adopting an agricultural general permit. An agricultural general permit outlines Best Management Practices (BMPs) for regulated agricultural activities in order to reduce PM_{10} emissions. PM_{10} emissions refer to particulate matter with an aerodynamic equivalent diameter of less than ten micrometers, and are regulated for public health reasons. The Committee adopts by rule a list of BMPs that can vary according to regional or geographical conditions or management practices. The Committee is required to adopt BMPs for animal agriculture, and requires dairy, beef cattle, poultry and swine operations to follow those BMPs if they are located in an area regulated as a PM_{10} nonattainment area. Currently, the Maricopa PM_{10} particulate nonattainment area and that portion of Area A located in Maricopa County are regulated areas.

An *agricultural general permit* is defined as BMPs that reduce PM_{10} emissions. Included in the definition of an agricultural general permit are BMP's that reduce PM_{10} emissions from the activities of a dairy, beef cattle feedlot, poultry facility, or swine facility, including practices relating to:

a) unpaved access connections.
b) unpaved roads or feed lanes.
c) animal waste handling and transporting.
d) arenas, corrals and pens.

Best Management Practices to Reduce PM_{10} Emissions from Beef Cattle Feed Yards

The following list of Best Management Practices (BMP's) is designed as a menu of options which reduce the emissions of particulates from the production of beef cattle at feed yards located in non-attainment areas in Arizona. This list of reduction measures is developed to reduce emissions in areas where the Environmental Protection Agency (EPA) has designated a non-attainment area for exceedances of the National Ambient Air Quality Standards (NAAQS).

These BMP's are designed to provide significant reductions when applied together across each individual category. The categories are: Arenas, Corral and Pens; Animal Waste, Handling and Transporting; Unpaved Roads or Feed Lanes; and Unpaved Access Connections. The combination of BMP's from each category are not designated by this proposal, instead we provide this cumulative list as an effort for the Technical Committee to review as acceptable BMP's. Future refinements to this list shall establish individual thresholds of BMP's for 3 categories: 1) Most Stringent Measures (MSM); 2) Best Available Control Measures (BACM); and 3) Reasonably Achievable Control Measures (RACM). The application of these three levels of BMP's will be applied based on the designation provided to each non-attainment area by the Environmental Protection Agency.

Other regions of the U.S. where such designations have occurred in agricultural areas where beef cattle production existed have compiled extensive research regarding these emissions and such numbers are codified in the attached list of BMP's. For example, science and research have found that beef cattle feed yards can expect to emit 10.59 lbs. of particulates per head/per day. These emissions are broken down by source category as follows: 7.94 pounds from Arenas, Corral and Pens; 0.53 pounds from Animal Waste, Handling and Transporting; 0.53 pounds from Unpaved Roads or Feed Lanes; and 1.59 pounds from Unpaved Access Connections. All of these BMP's and emission factors were derived from the San Joaquin Valley Air District Program; Imperial County Air Pollution Control District and the Pinal County Cowtown Area Feedlot Study implemented from February 1, 2009 through October 1, 2009.

The attached BMP's are designed to provide for adherence to the "Agricultural General Permit" provided for under Senate Bill 1225 in a cumulative fashion to meet or exceed current mitigation measures established under an approved State Implementation Plan.

Emission #/Hd/Yr	Beef Feedlot PM_{10} Best Management Practices (BMP's)	Control Efficiency
7.94	**Arenas, Corrals and Pens**	
	Concrete Aprons (at least 8 ft) in Pen Approaching Feed Bunks	10%
	Concrete Aprons (at least 4 ft) in Pen Approaching Water Troughs	10%
	Provide Shade in Corral to Increase Stocking Density and Suppress Animal Movement	10%
	Add Moisture to Pen Surface via Water Sprinkling (3 to 6 gallons per head/per day – Selective of Moisture and Weather Conditions – targeting an average of 20% moisture across the pen surface)	85%
	Frequent Manure Removal (every 6 months) leaving an even surface of compacted manure on top of soil	10%
	Pile Manure Between Cleanings	10%
	Increase Stocking Density in corral to increase manure moisture (targeting 20% average moisture across pen surface)	10%
	Feed Higher Moisture Feed (Wet Distiller Grain Solubles) to increase moisture in pens (targeting 20% average moisture across pen surface)	10%
	Control Cattle During Movements (So they do not run)	10%
	Plant Tree Windbreaks within 50 to 100 feet of Pen Area	10%
	Apply a Fibrous Layer in Working Areas	10%
0.53	**Animal Waste, Handling and Transporting**	
	Feed Higher Moisture Feeds	10%
	Add Molasses or Tallow to Feed	10%
	Store and Maintain Commodities in Bins, Tanks or Commodity Barns	10%
	Load Vehicles used to Haul Bulk Materials (including manure) to Prevent Spillage	10%
	Cover Manure Hauling Trucks (Prior to leaving yard)	10%
	Do Not Load Manure when wind exceeds 15 mph	10%
0.53	**Unpaved Roads or Feed Lanes**	
	Install Engine Speed Governors on Feed Trucks	42%
	Install Speed Limit Signs Prohibiting Vehicle Speeds in Excess of 15 MPH	42%
	Install Speed Control Devices (Speed Bumps)	81%
	Restrict Through Traffic (Gates/Signs/or Barriers)	10%
	Sprinkle Water on Roads/Feed lanes	70%
	Oil Roads (Only legally acceptable substances allowed)	76%
	Gravel, Rock or Grindings on Road	46%
	Pave High Traffic Areas	98%
	Apply and Maintain Dust Suppressants (other than water)	80%
1.59	**Unpaved Access Connections**	
	Apply and maintain pavement, gravel or asphaltic roadbase	42%
	Install Speed Control Devices (Speed Bumps)	81%
	Restrict Through Traffic (Gates/Signs/ or Barriers)	10%
	At all unpaved access connections in use; a track-out device will be installed & maintained	10%
	Apply and Maintain Dust Suppressants (other than water)	80%
	Apply Water	70%

Dairy Best Management Practices to Reduce PM_{10} Emissions

Dairy producers will be required to select at least one BMP per category; with the total of all of control measures meeting the percentage of emission reduction the State Implementation Plan requires.

The following lists of control measures can be used to control PM_{10} emissions for each of the following categories. Each category lists an emission factor in lb/head/year that can be reduced by the individual BMP's control efficiency factor.

Emission #/hd/yr	Dairy PM_{10} Best Management Practices (BMP's)	Control Efficiency
.369	**Unpaved Access Connections**	
	Install signage that prohibits vehicular speeds in excess of 15 miles per hour.	42%
	Install speed control devices (e.g., speed bumps).	81%
	Restrict access to thru traffic by posting signs or installing gates and limit vehicle trips per day.	10%
	Install and maintain at all unpaved access connections in use; a suitable track-out control device that controls and prevents track-out and/or removes particulate matter from tires and the exterior surfaces of motor vehicles that traverse the site.	10%
	Apply and maintain pavement, or asphaltic roadbase.	98%
	Apply and maintain gravel.	46%
	Apply and maintain dust suppressants other than water.	80%
	Application of water	70%
.123	**Unpaved Roads or Feed Lanes**	
	Install engine speed governors on vehicles used exclusively at dairy. Control to 15mph	42%
	Install signage that prohibits vehicular speeds in excess of 15 miles per hour.	42%
	Install speed control devices (e.g., speed bumps).	81%
	Restrict access to thru traffic by posting signs or installing gates and limit vehicle trips per day	10%
	Water roads.	70%
	Oil roads with approved (State, Federal) products.	76%
	Apply and maintain gravel, rock, and grindings on roads.	46%
	Pave (asphaltic roadbase) high traffic areas.	98%
	Apply and maintain dust suppressants other than water.	80%
	Use appropriate vehicles (electric carts, small utility vehicles) instead of trucks.	20%
	Pave or cement feed lanes	49%
.123	**Animal Feeding, Waste Handling and Transporting**	
	Feed high moisture feeds (e.g., green-chop, silage).	10%
	Add water to ration mix to achieve a 20% minimum moisture level.	10%
	Add molasses or tallow to ration mix at a minimum of 1%.	10%
	Store commodities in bins, tanks, or commodity barns.	10%
	Cover all silage piles (except feeding face).	10%
	Store silage in bunkers.	10%
	Cover manure hauling trucks prior to exiting dairy & implement proper material hauling procedures.	10%
	Do not load manure trucks with dry manure when wind exceeds 25 mph.	10%
4.6	**Arenas, Corrals and Pens**	
	Use free-stall housing with concrete lanes/feeding areas to allow frequent manure removal.	60%
	Provide shade in corral to increase stocking density.	10%
	Cement cattle walkways to milk barn.	25%
	Flush, scrape, or vacuum lanes daily.	10%
	Provide cooling in corral to increase stocking density.	10%
	Add moisture to manure through coolers or fence line spraying during hot dry weather.	10%
	Frequent manure removal (every 4 months) with equipment that leaves an even corral surface of compacted manure on top of the soil.	10%
	Scrape and harrow pens on at least on a weekly basis.	10%
	Use drag equipment instead of push equipment to maintain pens.	10%
	Pile manure between cleanings.	10%
	Feed green-chop to increase wetness of manure in corral.	10%
	Keep calves in barns or hutches (under two months of age).	10%
	Do not run cattle.	10%
	Apply a fibrous layer in working/dusty areas.	10%
	Plant tree windbreak within 50 to 100 feet of arenas, corrals and pens.	30%
	Stack hay to create windbreak within 50 to 100 feet of arenas, corrals, and pens.	30%
5.215	Select at least one BMP per category; with the total of all of control measures meeting the percentage of emission reduction the State Implementation Plan requires.	

Unpaved Access Connections

An unpaved access connection is defined as any unpaved private and or contractually leased road connection with a paved public road. The goal involves minimizing any and all material that adheres to and agglomerates on all vehicles and equipment from unpaved roads and falls onto a paved public road or the paved shoulder of a paved public road.

Unpaved Access Connections (any unpaved private and or contractually leased road connection with a paved public road). .369 lb/head/year Emission Factor	**Control Efficiency**
Install signage that prohibits vehicular speeds in excess of 15 miles per hour.	42%
Install speed control devices (e.g., speed bumps).	81%
Restrict access to thru traffic by posting signs or installing gates and limit vehicle trips per day.	10%
Install and maintain at all unpaved access connections in use; a suitable track-out control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of motor vehicles that traverse the site.	10%
Apply and maintain pavement, or asphaltic roadbase.	98%
Apply and maintain gravel.	46%
Apply and maintain dust suppressants other than water.	80%
Water roads.	70%

The practice of installing speed limit signs, speed bumps, or maintaining the road in such a manner that inhibits vehicular speed in excess of 15 miles per hour reduces PM_{10} from getting on to the paved public road from unpaved access connections. PM_{10} becomes entrained when vehicles pass over the unpaved road or area surface and can also be suspended by natural winds. PM_{10} emissions are a function of speed, meaning reducing speed reduces PM_{10} emissions. There is a linear relationship between speed and emissions; therefore, reducing speed to 15 mph will result in proportional emission reductions. A study performed by UC Davis in Fresno County examined speed reduction and found that reducing speed from 25 mph to 10 mph achieved 58% ± 3 control effectiveness and 42% ± 35 control effectiveness from 25 mph to 15 mph. For example, because the emissions from unpaved roads are directly proportional to vehicle speed, if the speed is reduced to 12.5 mph, the effectiveness of the control is more than doubled from 36% to 87%.

Restricting access means to limit public access to private roads and areas. That can be achieved by installing a line with a no-trespassing sign, by placing any other type of physical restriction across the road to discourage the use of it, or by signage that limits public access and thru traffic. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, restricting access will discourage the unnecessary use of the unpaved road and reduces emissions. With this concept, it is reasonable to assume that none to very minimal PM_{10} emissions would result from the mechanical disturbance of soil by the tires and vehicle on those unpaved roads and areas during non-agricultural activity.

Track-out control measures installed between the paved roads and unpaved vehicle/equipment traffic areas assist in reducing PM_{10} when vehicle pass over the unpaved road or area surface and onto traffic areas. This can be accomplished by maintaining sufficient length of paved/graveled interior roads to allow mud and dirt to drop off vehicles before exiting the site; or use of a grizzly to dislodge debris from tires and undercarriage of vehicles leaving site. The track out device must be a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of motor vehicles that traverse the site.

If trackout occurs, the owner and/or operator shall repair and/or replace the control measure(s) and shall clean up immediately such trackout from areas accessible to the public including curbs, gutters, and sidewalks when trackout extends a cumulative distance of 25 linear feet or more and at the end of the day for all other trackout.

Water can be used as a control measure on unpaved roads and unpaved vehicle/equipment traffic areas to reduce PM_{10} emissions. The emissions on these roads and areas result from the mechanical disturbance of soil by the tires and vehicle. Water increases soil particle mass by binding to them and also adds surface tension forces. Even after water evaporation, the properties of the cohesion of water and particles remains due to the formation of aggregates and surface crusts.

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Paving unpaved roads, feed lanes, and high traffic unpaved vehicle/equipment traffic areas can be used to reduce PM_{10} emissions when vehicles pass over the unpaved road or area surface. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, they can be reduced by changing the surface of the road. Paving changes the soil surface by providing a permanent protection from the tires and eliminates the amount of PM_{10} emissions being suspended in the air.

Gravel or other aggregate material can be used as a control measure on unpaved roads and unpaved vehicle/equipment traffic areas to reduce PM_{10} emissions when vehicle pass over the unpaved road or area surface. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, they can be reduced by changing the surface of the road. Gravel provides a protection similar to a chemical stabilization. It adds a layer that separates the soil surface from the tires and reduces the amount of PM_{10} emissions being suspended in the air. A layer of gravel must be placed at an appropriate depth to minimize emissions.

Applying nontoxic chemical or organic PM_{10} suppressants as a control measure on unpaved roads and unpaved vehicle/equipment traffic areas reduces PM_{10} emissions when vehicle pass over the unpaved road or area surface. These control measures must not be prohibited for use by any applicable regulation and also must meet any specification required by any federal, state, or local water agency. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, they can be reduced by changing the surface of the road either with wet suppression or chemical stabilization. Wet suppression keeps the road surface wet to control emissions. Chemical stabilization tries to change the physical characteristics of the surface. For example, road oil forms a coat over PM_{10} forming a hard crust and also improves the cohesive resistance of road material. It usually can be applied once every two to three months and re-applied several times per year to maintain its efficiency. Other types of dust suppressant have high water content to dilution ratios that allows the water to evaporate once applied to the soil and the non-water solution bonds the fine soil particles making them into larger particles; thus making those particles less susceptible to being entrained. Others draw moisture from the environment that acts to keep road surfaces moist, thus holding PM_{10} emissions down. Several studies were performed to evaluate the control effectiveness of PM_{10} suppressants. Two of them were performed in the San Joaquin Valley; one in Fresno County by UC Davis, and the other in Merced County by the Desert Research Institute. These two studies provide the best available data to date. Here's an explanation of the PM_{10} suppressant properties as described by the Desert Research Institute:

- **Salts:** these are hygroscopic compounds such as magnesium chloride or calcium chloride. They absorb water when the relative humidity exceeds about 50%. Water improves the adherence of the soil particles to each other. Salts are often depleted by precipitation and runoff owing to their high solubility.

- **Resin or petroleum emulsion:** these are non-water-soluble organic compounds that are emulsified or suspended in water. When these emulsions are sprayed onto soil, they stick the soil particles together, and eventually harden to form a solid mass. There are several emulsion products based on tree resin, petroleum, or asphalt compounds.
- **Polymers:** these act as adhesives which may be more effective than ordinary resins because their molecular structure is a long chain which in theory may be able to stick to more particles, or bridge larger particle-to-particle gaps.
- **Surfactants**: these reduce water surface tension, allowing available moisture to more effectively wet the particles and aggregates in the surface layer.
- **Bitumens:** these include materials such as asphalt or road oil that effectively pave the surface.
- **Adhesives:** these include lignin sulfonate, a syrupy wood product which creates a sticky but water-soluble layer.
- **Solid materials:** these include a petroleum industry by-product made by mixing recycled materials with earth materials.

Unpaved Roads or Feed Lanes

When a vehicle travels on an unpaved surface, such as an unpaved road or unpaved parking lot, the force of the wheels on the road surface causes pulverization of surface material. PM_{10} are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed. The quantity of PM_{10} emissions from a given segment of unpaved road varies linearly with the volume of traffic. Field investigations also have shown that emissions depend on source parameters that characterize the condition of a particular road and the associated vehicle traffic.

Control measures for unpaved roads and feed lanes include application of chemical dust suppressants, paving the surface or placing a layer of gravel over the unpaved surface, speed reduction, access restriction, and utilizing appropriate vehicles.

Unpaved Roads or Feed Lanes .123 lb/head/year Emission Factor	**Control Efficiency**
Install engine speed governors on vehicles used exclusively at dairy. Control to 15mph.	42%
Install signage that prohibits vehicular speeds in excess of 15 miles per hour.	42%
Install speed control devices (e.g., speed bumps).	81%
Restrict access to thru traffic by posting signs or install gates and limit vehicle trips / day	10%
Water roads.	70%
Oil roads with approved (State, Federal) products.	76%
Apply and maintain gravel, rock, and grindings on roads.	46%
Pave (asphaltic roadbase) high traffic areas.	98%
Apply and maintain dust suppressants other than water	80%
Use appropriate vehicles (electric carts, small utility vehicles) instead of trucks.	20%
Pave or cement feed lanes.	49%

The practice of installing speed governors on dairy vehicles, speed limit signs, speed bumps, or maintaining the road in such a manner that inhibits vehicular speed in excess of 15 miles per hour reduces PM_{10} emissions. PM_{10} emissions become entrained when vehicles pass over the unpaved road or area surface and can also be suspended by natural winds. PM_{10} emissions are a function of speed, meaning reducing speed reduces PM_{10} emissions. There is a linear relationship between speed and emissions; therefore, reducing speed to 15 mph will result in proportional emission reductions. A study performed by UC Davis in Fresno County examined speed reduction and found that reducing speed from 25 mph to 10 mph achieved 58% ± 3 control effectiveness and 42% ± 35 control effectiveness from 25 mph to 15 mph. For example, because the emissions from unpaved roads are directly proportional to vehicle speed, if the speed is reduced to 12.5 mph, the effectiveness of the control is more than doubled from 36% to 87%.

Restricting access means to limit public access to private roads and areas. That can be achieved by installing a line with a no-trespassing sign, by placing any other type of physical restriction across the road to discourage the use of it, or by signage that limits public access and thru traffic. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, restricting access will discourage the unnecessary use of the unpaved road and reduces emissions. With this concept, it is reasonable to assume that none to very minimal PM_{10} emissions would result from the mechanical disturbance of soil by the tires and vehicle on those unpaved roads and areas during non-agricultural activity.

Water can be used as a control measure on unpaved roads and unpaved vehicle/equipment traffic areas to reduce PM_{10} emissions. The emissions on these roads and areas result from the mechanical disturbance of soil by the tires and vehicle. Water increases soil particle mass by binding to them and also adds surface tension forces. Even after water evaporation, the properties of the cohesion of water and particles remains due to the formation of aggregates and surface crusts.

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Paving unpaved roads, feed lanes, and high traffic unpaved vehicle/equipment traffic areas can be used to reduce PM_{10} emissions when vehicles pass over the unpaved road or area surface. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, they can be reduced by changing the surface of the road. Paving changes the soil surface by providing a permanent protection from the tires and eliminates the amount of PM_{10} emissions being suspended in the air.

Gravel or other aggregate material can be used as a control measure on unpaved roads and unpaved vehicle/equipment traffic areas to reduce PM_{10} emissions when vehicle pass over the unpaved road or area surface. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, they can be reduced by changing the surface of the road. Gravel provides a protection similar to a chemical stabilization. It adds a layer that separates the soil surface from the tires and reduces the amount of PM_{10} emissions being suspended in the air. A layer of gravel must be placed at an appropriate depth to minimize emissions.

Applying nontoxic chemical or organic PM_{10} suppressants as a control measure on unpaved roads and unpaved vehicle/equipment traffic areas reduces PM_{10} emissions when vehicle pass over the unpaved road or area surface. These control measures must not be prohibited for use by any applicable regulation and also must meet any specification required by any federal, state, or local water agency. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, they can be reduced by changing the surface of the road either with wet suppression or chemical stabilization. Wet suppression keeps the road surface wet to control emissions. Chemical stabilization tries to change the physical characteristics of the surface. For example, road oil forms a coat over PM_{10} forming a hard crust and also improves the cohesive resistance of road material. It usually can be applied once every two to three months and re-applied several times per year to maintain its efficiency. Other types of dust suppressant have high water content to dilution ratios that allows the water to evaporate once applied to the soil and the non-water solution bonds the fine soil particles making them into larger particles; thus making those particles less susceptible to being entrained. Others draw moisture from the environment that acts to keep road surfaces moist, thus holding PM_{10} emissions down. Several studies were performed to evaluate the control effectiveness of PM_{10} suppressants. Two of them were performed in the San Joaquin Valley; one in Fresno County by UC Davis, and the other in Merced County by the Desert Research Institute. These two studies provide the best available data to date. Here's an explanation of the PM_{10} suppressant properties as described by the Desert Research Institute:

- **Salts:** these are hygroscopic compounds such as magnesium chloride or calcium chloride. They absorb water when the relative humidity exceeds about 50%. Water improves the adherence of the soil particles to each other. Salts are often depleted by precipitation and runoff owing to their high solubility.
- **Resin or petroleum emulsion:** these are non-water-soluble organic compounds that are emulsified or suspended in water. When these emulsions are sprayed onto soil, they stick the soil particles together, and eventually harden to form a solid mass. There are several emulsion products based on tree resin, petroleum, or asphalt compounds.
- **Polymers:** these act as adhesives which may be more effective than ordinary resins because their molecular structure is a long chain which in theory may be able to stick to more particles, or bridge larger particle-to-particle gaps.

- **Surfactants**: these reduce water surface tension, allowing available moisture to more effectively wet the particles and aggregates in the surface layer.
- **Bitumens:** these include materials such as asphalt or road oil that effectively pave the surface.
- **Adhesives:** these include lignin sulfonate, a syrupy wood product which creates a sticky but water-soluble layer.
- **Solid materials:** these include a petroleum industry by-product made by mixing recycled materials with earth materials.

Using appropriate vehicles (electric carts, small utility vehicles) instead of trucks to perform routine tasks or trips on the dairy will reduce PM_{10} emissions. These vehicles weigh significantly less than a truck and cause less soil disturbance.

Animal Feeding, Waste Handling and Transporting

The daily activities on dairies of feeding animals and removing manure require the handling and transportation of large amounts of bulk materials. These activities contribute to PM_{10} emissions on dairies. A number of procedures have been identified to reduce these emissions when storing and handling bulk materials.

PM_{10} emissions in animal feeding operations originate from feed, bedding material, and manure, and can depend on several factors such as stocking density, and feeding methods. Emissions result from the disturbance of dry and loose surface caused by animal movement and mechanical disturbances by the tires and vehicle.

Animal Feeding, Waste Handling and Transporting **.123 lb/head/year Emission Factor**	**Control Efficiency**
Feed high moisture feeds (e.g., green-chop, silage).	10%
Add water to ration mix to achieve a 20% minimum moisture level.	10%
Add molasses or tallow to ration mix at minimum of 1%.	10%
Store commodities in bins, tanks or commodity barns.	10%
Cover all silage piles (except feeding face).	10%
Store silage in bunkers.	10%
Cover manure hauling trucks prior to exiting dairy and implement the proper material hauling procedures.	10%
Do not load manure trucks with dry manure when wind exceeds 25 miles per hour	10%

Feeding operations include the procurement and storage of large quantities of different feed ingredients. These various ration components are mixed together then transported to the feed lanes and dispensed to the animals multiple times a day. The PM_{10} emissions from feed storage areas due to wind erosion can be reduced by the use of bunkers, coverings, bins, tanks, and commodity barns. High moisture feeds and the addition of water, oils and molasses to feed rations reduce PM_{10} emissions by binding these small particles to the larger ones in the ration.

Manure management activities require that periodically large amounts of dry manure are removed from the animal pens and transported to sites where they are applied for fertilizer in agricultural crops. When manure hauling trucks are in transit from the dairy to the land application sites covering the truck loads of dry manure reduces PM_{10} emissions. Limiting manure loading operations to days where the wind is blowing less than 25 mph will also reduce PM_{10} emissions.

Bulk material hauling off-site and crossing and/or accessing an area accessible to the public:

1. Load all vehicles used to haul bulk material, including animal waste, such that the freeboard is not less than three inches:
2. Prevent spillage of loss of bulk material, including animal waste, from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s);
3. Cover cargo compartment with a tarp or other suitable closure; and
4. Install, maintain, and use a suitable trackout control device that controls and prevents track-out and/or removes particulate matter from tires and the exterior surfaces of motor vehicles that traverse the site.

Arenas, Corrals and Pens

The control of PM_{10} emissions in areas where animals are housed can be broken down into a number of different mitigation strategies. Physical design characteristics of dairies can have a significant impact on reducing PM_{10} emissions. Another area where PM_{10} emissions can be minimized are management procedures that not only optimize operations for the efficient production of milk but also take into account each procedures impact on PM_{10} emission reductions.

Arenas, Corrals and Pens **4.6 lb/head/year Emission Factor**	**Control Efficiency**
Use free-stall housing with concrete lanes/feeding areas to allow frequent manure removal.	60%
Provide shade in corrals to increase stocking density.	10%
Cement cattle walkways to milk barn.	25%
Flush, scrape, or vacuum lanes daily.	10%
Provide cooling in corrals to increase stock density.	10%
Add moisture to manure through coolers or fence line spraying during hot dry weather.	10%
Frequent manure removal (every 4 months) with equipment that leaves an even corral surface of compacted manure on top soil.	10%
Scrape and harrow pens on at least a weekly basis.	10%
Use drag equipment instead of push equipment to maintain pens.	10%
Pile manure between cleaning.	10%
Feed green-chop to increase wetness of manure in corrals.	10%
Keep calves in barns or hutches (under two months of age).	10%
Do not run cattle.	10%
Plant tree windbreak within 50 to 100 feet of arenas, corrals and pens.	30%
Stack hay to create windbreak within 50 to 100 feet of arenas, corrals, and pens.	30%
Fibrous layer in working/dusty areas.	10%

The designs of dairies are characterized as either open corral or free-stall. In open corral dairies, animals are confined in large, open air, fenced corrals on a surface of compacted manure. Free-stall dairy designs house the animals under roofed structures, on concrete floors where there is a minimum of contact with compacted manure. The disturbance of the corral surfaces, by animal movement, is a source of emissions. Other features that are incorporated into both of these designs that can reduce emissions are:

- Concrete walkways from the animal housing to the milk barn, which eliminate animal contact with compacted manure surfaces.
- Flush systems that remove manure from the concrete feed apron on daily basis, reducing the overall manure build up in corrals. This removal of manure on a daily basis assists in maintaining a 1" to 3" manure pack in the corrals.
- Evaporative cooling systems under corral shades, which increase animal stocking densities and add moisture to the manure pack.

The use of free-stall housing results in a reduction in the amount of generated dust. For this area of the facility, emissions would otherwise result from the disturbance of dry and loose corral surface caused by animal movement. Having a concrete floor eliminates having a dry, loose surface, thus reducing PM_{10} emissions. It also allows for manure deposition to be cleaned through a flushing system. The manure would already be in a high moisture state at that stage. The practice may also be practical for reducing PM_{10} emissions of dry cows and heifers.

The practice of providing shaded areas in open corrals involves providing shades for the animals to loaf in. For this area of the facility, emissions result from the disturbance of the dry and loose surface caused by animals. By providing shades, it allows the animals to stay in shaded areas together, thus increasing stocking density under the shades, which in turn, increases the moisture content of the surface, and thereby reduces PM_{10} emissions.

The practice of frequent scraping/harrowing and/or manure removal in the corrals prevents the build-up of dry loose manure which can be conveyed airborne by the animals hoof action. The management objective for open corral surfaces is to maintain a firm hard, well drained surface consisting of a 1-3" layer of well compacted manure and soil over the mineral subsoil, minimizing the depth of uncompacted manure on the corral surface. Moreover, the piling of manure in low traffic areas not only reduces the surface area of manure exposed to wind erosion but also reduces the redistribution of un-compacted manure by animal activity. An even corral manure pack surface can be achieved with a piece of equipment that allows operators to leave it leveled evenly with compacted manure on top of soil. It is physically more difficult to ensure that a pushed scraper blade (e.g.: front loader) leaves an even, smooth surface than a pulled blade (e.g.: box scraper). Pull-type equipment stabilizes soil surface by avoiding floor depressions for PM_{10} accumulation and accumulation of dry soil/manure.

Stocking densities in corrals can be increased to increase the moisture level in the manure pack. Feeding strategies that increase the moisture level in manure can also be used to reduce PM_{10} emissions in corrals. Housing calves in barns or hutches (two months of age or less) reduces PM_{10} emissions by removing these animals from the manure pack of the corrals.

Operation procedures that strictly forbid herding tactics that make animals run will reduce PM_{10} emission. With dairy animals being moved from the corrals to the milking parlor multiple times per day this procedure can have a significant affect.

Planting trees or stacking hay bales to form a windbreak establishes a boundary that disrupts the erosive flow of wind over unpaved roads and areas. This wind barrier reduces the PM_{10} emissions typically stirred up in the process due to winds. The effectiveness of a barrier depends on the height, density, orientation, and length. For instance, it was found that a wind barrier reduces wind speeds up to 30 times their height downwind and that the sheltered area is defined as ten times the height on the leeward side and two times the height on the windward side of the barrier. The maximum benefit of using this practice is when the barriers are as perpendicular as possible to the prevailing wind direction. Examples of barrier are continuous board fences, trees, shrubs, conifers, burlap fences, crate walls, bales of hay, etc. A basic requirement is to have a continuous row of barriers. The longer it is the better the protection it provides.

The practice "Fibrous Layer in Working Areas" or "Fibrous Layer in Dusty Areas" means to add fibrous or damp material to these areas. Emissions result from the disturbance of the dry and loose surface caused by animal movement. This practice prevents fugitive dust disturbance and entrainment by retaining moisture longer. This practice is more applicable to areas that heifers occupy. For example, it can be achieved by adding wood chips, dry separated manure solids, or other materials to sorting alleys and high traffic areas to hold moisture and keep down dust disturbance. Another example is to put damp manure solids right off the separator into the heifer pens on a daily basis and working it with a harrow. This keeps the more fibrous materials at the surface and the finer below, enabling the fibrous layer to trap the finer particles.

Poultry Best Management Practices to Reduce PM_{10} Emissions

Pursuant to SB 1225 producers are required to select two BMP's from each of the four categories.

For poultry facilities with 25,000 egg laying hens or more the following lists of control measures can be used to control PM_{10} emissions for each of the following categories. Each category lists an emission factor in lb/head/year that can be reduced by the individual BMP's control efficiency factor.

Emissions	**Poultry Operations PM_{10} Best Management Practices** **(For poultry facilities with 25,000 egg laying hens or more)**	Control Efficiency
2lbs/Vehicle Miles Traveled	**Unpaved Access Connections**	
	Install signage that prohibits vehicular speeds in excess of 15 mph.	42
	Install speed control devices (e.g., speed bumps, closed gates).	81
	Restrict access to thru traffic by posting signs or installing gates.	10
	At all exits; install gravel pad, pavement or other track-out control device between all unpaved road connection and paved public road.	10
	Unpaved Roads/Equipment Areas	
	Install signage that prohibits vehicular speeds in excess of 15 mph	42
	Restrict access to thru traffic by posting signs or installing gates	10
	Sprinkle water	70
	Use gravel, rock, or grindings	46
.0213lbs/Hd/Yr	**Animal Feeding, Waste Handling and Transportation**	
	Remove spilled feed from the facility at least once every 14 days	10
	Store feed in an enclosed weatherproof storage structure	10
	Add oil and/or water to the feed rations to minimize PM_{10} during feed handling and consumption	10
	Distribute feed within the houses in an enclosed feed distribution system	10
	Use a flexible discharge spout on the end of the feed truck transfer auger for feed deliveries to the site	10
	Minimize drop distance from feed distribution system into feeders (i.e. extension line off of feed distribution system into feeder)	10
	Enclose transfer point(s) from the feed storage structure to the in-house feed distribution system	10
	Wash floors and walls between animal groups to remove PM_{10} & manure accumulations	10
	Clean aisles between cage rows at least twice every 14 days to prevent dried manure, spilled feed, and debris accumulation	10
	Stack separated solids to minimize surface area exposure	10
	Maintain moisture in solids	10
	Housing	
	Clean/wash fans, louvers, and soffit inlets between animal groups to remove PM_{10} accumulation	10
	No bedding is used in the production facility	10
	Control vegetation on building exteriors to prevent PM_{10} accumulation	10
	Add moisture through coolers in housing on dry hot days	10
	Poultry housed in fully enclosed ventilated buildings	10*

Emissions and Control Efficiency figures are based on the Conservation Services Report Program Report for 2005 dated January 19, 2006 to the San Joaquin Valley Air Pollution Control District. Prepared by Patia Siong, Senior Air Quality Specialist and Samir Sheikh, Permit Services Manager. Reviewed by David Warner, Director of Permit Services and Seyed Sadredin, Deputy APCO. Report is found at: http://www.valleyair.org/farmpermits/updates/cmp_program_report_for_2005.pdf

Where Control efficiency figures are unknown, a level of 10 is assumed per the approach adopted in the Conservation Services Report Program Report for 2005 dated January 19, 2006 to the San Joaquin Valley Air Pollution Control District cited in the previous paragraph. Pursuant to communications with Sheraz Gill, Supervising Air Quality Engineer, San Joaquin Valley Air Pollution Control district on December 2, 2009, the hen PM_{10} emission factor that the San Joaquin Valley Air Pollution Control District is currently using is 0.0213 lbs/hd-yr. This is based on the study *"Particulate Matter and Ammonia Emission Factors for tunnel-Ventilated broiler houses in the Southern US", R.E. Lacey, J.S. Redwine, C.B Parnell, Jr.*

This document will need to be reevaluated when additional emissions and control efficiency data is available for poultry.

*We have conservatively assumed a control efficiency of 10 for the BMP "Poultry housed in fully enclosed ventilated buildings" based on the assumptions used in the San Joaquin Valley. However, it is certain that the most efficient control factor for PM10 in poultry production is in fact such housing.

Unpaved Access Connections

An unpaved access connection is defined as any unpaved private road connection with a paved public road. The goal involves minimizing any and all material that adheres to and agglomerates on all vehicles and equipment from unpaved roads and falls onto a paved public road or the paved shoulder of a paved public road.

Unpaved Access Connections(any unpaved private road connection with a paved public road	Control Efficiency
Install signage that prohibits vehicular speeds in excess of 15 miles per hour.	42%
Install speed control devices (e.g., speed bumps, closed gates).	81%
Restrict access to thru traffic by posting signs or installing gates.	10%
At all exits; install gravel pad, pavement or other track-out control device between all unpaved road connection and paved public road.	10%

The practice of installing speed limit signs, speed bumps, or maintaining the road in such a manner that inhibits vehicular speed in excess of 15 miles per hour reduces PM_{10} from getting on to the paved public road from unpaved access connections. PM_{10} becomes entrained when vehicles pass over the unpaved road or area surface and can also be suspended by natural winds. PM_{10} emissions are a function of speed, meaning reducing speed reduces PM_{10} emissions. There is a linear relationship between speed and emissions; therefore, reducing speed to 15 mph will result in proportional emission reductions.

Restricting access means to limit public access to private roads and areas. That can be achieved by installing a line with a no-trespassing sign, by placing any other type of physical restriction across the road to discourage the use of it, or by signage that limits public access and thru traffic. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, restricting access will discourage the unnecessary use of the unpaved road and reduces emissions. With this concept, it is reasonable to assume that none to very minimal PM_{10} emissions would result from the mechanical disturbance of soil by the tires and vehicle on those unpaved roads and areas during non-agricultural activity.

Track-out control measures installed between the paved roads and unpaved vehicle/equipment traffic areas assist in reducing PM_{10} when vehicle pass over the unpaved road or area surface and onto traffic areas. This can be accomplished by maintaining sufficient length of paved/graveled interior roads to allow mud and dirt to drop off vehicles before exiting the site; or use of other methods to dislodge debris from tires and undercarriage of vehicles leaving site.

Unpaved Roads/Equipment Areas

When a vehicle travels on an unpaved surface, such as an unpaved road or unpaved equipment area, the force of the wheels on the road surface causes pulverization of surface material. PM_{10} are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed. The quantity of PM_{10} emissions from a given segment of unpaved road varies linearly with the volume of traffic. Field investigations also have shown that emissions depend on source parameters that characterize the condition of a particular road and the associated vehicle traffic.

Control measures for unpaved roads and equipment areas include application of chemical dust suppressants, paving the surface or placing a layer of gravel over the unpaved surface, speed reduction, access restriction, and utilizing appropriate vehicles.

Unpaved Roads/Equipment Areas	Control Efficiency
Install signage that prohibits vehicular speeds in excess of 15 miles per hour.	42%
Restrict access to thru traffic by posting signs or install gates.	10%
Sprinkle water	70%
Use gravel, rock, or grindings	46%

The practice of installing speed limit signs in such a manner that inhibits vehicular speed in excess of 15 miles per hour reduces PM_{10} emissions. PM_{10} emissions become entrained when vehicles pass over the unpaved road or area surface and can also be suspended by natural winds. PM_{10} emissions are a function of speed, meaning reducing speed reduces PM_{10} emissions. There is a linear relationship between speed and emissions; therefore, reducing speed to 15 mph will result in proportional emission reductions.

Restricting access means limiting public access to private roads and equipment areas. That can be achieved by installing a line with a no-trespassing sign, by placing any other type of physical restriction across the road to discourage the use of it, or by signage that limits public access and thru traffic. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, restricting access will discourage the unnecessary use of the unpaved road and reduces emissions. It is reasonable to assume that none to very minimal PM_{10} emissions would result from the mechanical disturbance of soil by the tires and vehicle on those unpaved roads and areas during non-agricultural activity.

Water can be used as a control measure on unpaved roads and unpaved equipment areas to reduce PM_{10} emissions. The emissions on these roads and areas result from the mechanical disturbance of soil by the tires and vehicle. Water increases soil particle mass by binding to them and also adds surface tension forces. Even after water evaporation, the properties of the cohesion of water and particles remains due to the formation of aggregates and surface crusts.

Gravel or other aggregate material can be used as a control measure on unpaved roads and unpaved equipment areas to reduce PM_{10} emissions when vehicles pass over the unpaved road or area surface. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, they can be reduced by changing the surface of the road. Gravel provides a protection similar to a chemical stabilization. It adds a layer that separates the soil surface from the tires and reduces the amount of PM_{10} emissions being suspended in the air. A layer of gravel must be placed at an appropriate depth to minimize emissions.

Animal Feeding, Waste Handling and Transporting

PM_{10} emissions in animal feeding operations originate from feed, bedding material, and manure, and can depend on several factors. Emissions result from the disturbance of dry and loose surface materials caused by animal movement and mechanical disturbances by vehicles.

Animal Feeding, Waste Handling and Transporting	Control Efficiency
Remove spilled feed from the facility at least once every 14 days	10%
Store feed in an enclosed weatherproof storage structure	10%
Add oil and/or water to the feed rations to minimize PM_{10} during feed handling and consumption	10%
Distribute feed within the houses in an enclosed feed distribution system	10%
Use a flexible discharge spout on the end of the feed truck transfer auger for feed deliveries to the site	10%
Minimize drop distance from feed distribution system into feeders (i.e. extension line off of feed distribution system into feeder)	10%
Enclose transfer point(s) from the feed storage structure to the in-house feed distribution system	10%
Wash floors and walls between animal groups to remove PM_{10} and manure accumulations	10%
Clean aisles between cage rows at least twice every 14 days to prevent dried manure, spilled feed, and debris accumulation	10%
Stack separated solids to minimize surface area exposure	10%
Maintain moisture in solids	10%

Poultry feed is delivered to the housing unit site premixed. No raw material storage or feed mixing occurs on-site. Poultry feed is bulk stored outside of the housing units. Bulk feed deliveries occur on an as-needed basis. From the bulk feed storage area, feed is transferred into the housing units as necessary. Once inside of the housing units, the feed is distributed into feeders.

Fugitive particulate matter (PM_{10}) emissions in animal feeding operations can originate from feed and feed transfer. Emissions due to wind can be reduced by minimizing wind contact through use of a flexible discharge spout on the end of the feed truck transfer auger for bulk feed deliveries to the housing units and storing bulk feed inside of weatherproof storage structures. Addition of water and/or oils to feed rations can reduce PM_{10} emissions by binding the small particles to the larger ones in the ration. Emissions can be further reduced through enclosing transfer point(s) from the bulk feed storage structure to the in-house feed distribution system, distribution of feed within the houses in an enclosed feed distribution system, and minimizing drop distance from the feed distribution system into feeders. All of these practices will reduce emissions by reducing introduction of PM_{10} into the air during feed disturbance by minimizing air contact during feed conveyance. Removing spilled feed from the facility at least once every 14 days will minimize the PM_{10} emissions from air movement across feed spills.

When disturbed by animals or employees, dried manure, dust, and spilled feed can contribute to PM_{10} emissions. Washing cage rows, floors, and walls between animal groups will prevent dust and manure accumulation. Cleaning aisles between cage rows at least twice every 14 days will prevent dried manure, spilled feed, and debris accumulation.

Fugitive PM_{10} emissions can originate from the solids and manure stacks. PM_{10} emission can be reduced by stacking separated solids to minimize surface area exposure, minimizing wind exposure. Maintaining moisture in the solids can also reduce PM_{10} emissions by binding the small particles to the larger particles.

Housing

The control of PM_{10} emissions in areas where animals are housed can be broken down into different mitigation strategies. Physical design characteristics of houses can have a significant impact on reducing PM_{10} emissions. Another area where PM_{10} emissions can be minimized is management procedures that not only optimize operations for efficient production but also take into account each procedures impact on PM_{10} emission reductions.

*We have conservatively assumed a control efficiency of 10 for the BMP "Poultry housed in fully enclosed ventilated buildings" based on the assumptions used in the San Joaquin Valley. However, it is certain that the most efficient control factor for PM10 in poultry production is in fact such housing.

Housing	Control Efficiency
Clean/wash fans, louvers, and soffit inlets between animal groups to remove PM_{10} accumulation	10
No bedding is used in the production facility	10
Control vegetation on building exteriors to prevent PM_{10} accumulation	10
Add moisture through coolers in housing on dry hot days	10
Poultry housed in fully enclosed ventilated buildings	10*

Poultry are produced inside of temperature regulated housing units with mechanical ventilation for comfort. The disturbance of housing unit surfaces, by air movement and animal/employee movement, is a source of PM_{10} emissions. PM_{10} emissions can be reduced through dust mitigation inside and around the housing units.

Mechanical ventilation fans accumulate dust on the fan blades and louvers as they operate; cleaning/washing fan blades and louvers between animal groups reduces PM_{10} that can break free into the air from the fans and louvers. Vegetation around the housing units can increase PM_{10} emissions by trapping dust then dispensing into the atmosphere as air moves across it. Controlling vegetation on building exteriors will prevent dust accumulation.

The disturbance of dried solids build-up results in PM_{10} emissions. Perforated flooring allows effluent from the animals to fall below the floor, minimizing solids build-up within the enclosure. The use of bedding results in PM_{10} emissions due to the disturbance and break down of bedding material as well as disturbance of solids accumulation within the bedding material. PM_{10} emissions from bedding material and solids accumulation are prevented by not using bedding material.

The addition of moisture through in-house coolers on hot days reduces PM_{10} emissions by increasing the moisture level in the air and on surfaces, reducing PM_{10}emissions caused by air movement and animal/employee disturbance. Addition of moisture will also help prevent any solids accumulation from drying out and becoming airborne as PM_{10} during disturbance.

Swine Best Management Practices to Reduce PM_{10} Emissions

Pursuant to SB 1225 producers are required to select two BMP's from each of the four categories.

For swine facilities with over 50 animal units (1000 pounds = 1 AU), the following lists of control measures can be used to control PM_{10} emissions for each of the following categories.

Emissions	**Swine Operation PM_{10} Best Management Practices** **for swine facilities with over 50 animal units (1000 pounds = 1 AU)**	**Control Efficiency**
2lbs/Vehicle Miles Traveled	**Unpaved Access Connections**	
	Install vehicular speed limit signs (15 miles per hour, 25 miles per hour).	42, 3
	Install speed control devices (e.g., speed bumps).	81
	Restrict access to thru traffic by posting signs or installing gates.	10
	At all exits; install gravel pad, pavement or other track-out control device between all unpaved road connection and paved public road.	10
	Unpaved Roads/Equipment Areas	
	Install vehicular speed limit signs (15 miles per hour, 25 miles per hour).	42, 3
	Install speed control devices (e.g. speed bumps)	3
	Restrict access to thru traffic by posting signs or installing gates	10
	Maintain roads in such a manner that inhibits vehicular speeds (15 mph, 25 mph)	42, 3
	Apply PM10 suppressant(s) on roads (polymers, road oil, water)	80,76,70
	Install wind barriers along road side	30
	Use gravel, rock, or grindings	46
#/Hd/Yr	**Animal Feeding, Waste Handling and Transportation**	
	Remove spilled feed from the facility at least once every 14 days	10
	Store grain in an enclosed weatherproof storage structure	10
	Add oil and/or water to the feed rations to minimize PM10 during feed handling and consumption	10
	Distribute feed within the barns in an enclosed feed distribution system	10
	Use a flexible discharge spout on the end of the feed truck transfer auger for feed deliveries to the site	10
	Minimize drop distance from feed distribution system into feeders (i.e. extension line off of feed distribution system into feeder)	10
	Enclose transfer point(s) from the feed storage structure to the in-barn feed distribution system	10
	Wash pens, floors, and walls between animal groups to prevent PM10 and manure accumulations	10
	Clean aisles between pens and stalls at least twice every 14 days to prevent dried manure, spilled feed, and debris accumulation	10
	Store separated solids in a wind-blocked area	10
	Stack separated solids to minimize surface area exposure	10
	Maintain moisture in solids	10
	Maintain liquid lagoon level above solids accumulation in lagoons	10
	Housing	
	Swine housed in fully enclosed ventilated buildings	10*
	No bedding is used in the production facility	10
	Use a slatted floor system to prevent solids build-up	10
	Use sloped concrete flooring	10[1]
	Clean/wash fans and louvers between animal groups to remove PM10 accumulation	10
	Control vegetation on building exteriors to prevent PM10 accumulation	10
	Add moisture through coolers on dry hot days	10

Emissions and Control Efficiency figures are based on the Conservation Services Report Program Report for 2005 dated January 19, 2006 to the San Joaquin Valley Air Pollution Control District. Prepared by Patia Siong, Senior Air Quality Specialist and Samir Sheikh, Permit Services Manager. Reviewed by David Warner, Director of Permit Services and Seyed Sadredin, Deputy APCO. Report is found at: http://www.valleyair.org/farmpermits/updates/cmp_program_report_for_2005.pdf

Where Control efficiency figures are unknown, a level of 10 is assumed per the approach adopted in the Conservation Services Report Program Report for 2005 dated January 19, 2006 to the San Joaquin Valley Air Pollution Control District cited in the previous paragraph. Accurate emissions in swine animal feeding, waste handling, transportation, and housing categories are unknown at this time due to lack of data. This document will need to be reevaluated when additional emissions and control efficiency data is available for swine.

Please note that in the San Joaquin Valley swine facilities are currently not covered by the San Joaquin Valley Air Pollution Control District Rule 4550 regarding PM_{10} emissions. Pursuant to communications with Sheraz Gill, Supervising Air Quality Engineer, San Joaquin Valley Air Pollution Control district on December 2, 2009, Sheraz Gill provided the following:

> "In regards to precluding swine from District Rule 4550 (Conservation Management Practices), the District concluded the following in the 2004 Staff Report for the Rule 4550): *Rule 4550 would not apply to other types of AFOs such as swine, horse or sheep. PM10 emission factors for these operations are not available. Based on the population data from the 1997 agriculture census and comparing them with emissions from other species, District staff estimated that the emissions would likely be less than the 1 ton/year de-minimis level as allowed in SB700. The number of facilities of these operations is small in the San Joaquin Valley. In addition, it is reasonable to assume that fugitive PM10 emissions would not be significant based on the management of these operations. District staff may adjust the exemption thresholds and determination as new information becomes available."*

*We have conservatively assumed a control efficiency of 10 for the BMP "Fully enclosed ventilated buildings" based on the assumptions used in the San Joaquin Valley. However, it is certain that the most efficient control factor for PM10 in swine production is in fact such housing.

Unpaved Access Connections

An unpaved access connection is defined as any unpaved private road connection with a paved public road. The goal involves minimizing any and all material that adheres to and agglomerates on all vehicles and equipment from unpaved roads and falls onto a paved public road or the paved shoulder of a paved public road.

Unpaved Access Connections (any unpaved private road connection with a paved public road).	**Control Efficiency**
Install vehicular speed limit signs (15 miles per hour, 25 miles per hour).	42, 3
Install speed control devices (e.g., speed bumps).	81
Restrict access to thru traffic by posting signs or installing gates.	10
At all exits; install gravel pad, pavement or other track-out control device between all unpaved road connection and paved public road.	10

The practice of installing speed limit signs, speed bumps, or maintaining the road in such a manner that inhibits vehicular speed in excess of 15 mph or 25 miles per hour reduces PM_{10} from getting on to the paved public road from unpaved access connections. Access gates will also limit speed due to the physical act of stopping to open and close the gate. PM_{10} becomes entrained when vehicles pass over the unpaved road or area surface and can also be suspended by natural winds. PM_{10} emissions are a function of speed, meaning reducing speed reduces PM_{10} emissions. There is a linear relationship between speed and emissions; therefore, reducing speed will result in proportional emission reductions.

Restricting access means to limit public access to private roads and areas. That can be achieved by installing a line with a no-trespassing sign, by placing any other type of physical restriction across the road to discourage the use of it, or by signage that limits public access and thru traffic. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, restricting access will discourage the unnecessary use of the unpaved road and reduces emissions. With this concept, it is reasonable to assume that none to very minimal PM_{10} emissions would result from the mechanical disturbance of soil by the tires and vehicle on those unpaved roads and areas during non-agricultural activity.

Track-out control measures installed between the paved roads and unpaved vehicle/equipment traffic areas assist in reducing PM_{10} when vehicle pass over the unpaved road or area surface and onto traffic areas. This can be accomplished by maintaining sufficient length of paved/graveled interior roads to allow mud and dirt to drop off vehicles before exiting the site; or use of other methods to dislodge debris from tires and undercarriage of vehicles leaving site.

Unpaved Roads or Feed Lanes

When a vehicle travels on an unpaved surface, such as an unpaved road or unpaved equipment area, the force of the wheels on the road surface causes pulverization of surface material. PM_{10} are lifted and dropped from the rolling wheels, and the road surface is exposed to strong air currents in turbulent shear with the surface. The turbulent wake behind the vehicle continues to act on the road surface after the vehicle has passed. The quantity of PM_{10} emissions from a given segment of unpaved road varies linearly with the volume of traffic. Field investigations also have shown that emissions depend on source parameters that characterize the condition of a particular road and the associated vehicle traffic.

Control measures for unpaved roads and equipment areas include application of chemical PM10 suppressants, paving the surface or placing a layer of gravel over the unpaved surface, speed reduction, access restriction, and utilizing appropriate vehicles.

Unpaved Roads or Feed Lanes	Control Efficiency
Install vehicular speed limit signs (15 miles per hour, 25 miles per hour).	42, 3
Install speed control devices (e.g. speed bumps)	3
Restrict access to thru traffic by posting signs or installing gates	10
Maintain roads in such a manner that inhibits vehicular speeds (15 mph, 25 mph)	42, 3
Apply PM10 suppressant(s) on roads (polymers, road oil, water)	80,76,70
Use gravel, rock, or grindings	46

The practice of installing speed limit signs in such a manner that inhibits vehicular speed in excess of 15 or 25 miles per hour reduces PM_{10} emissions. Access gates will also limit speed due to the physical act of stopping to open and close the gate. PM_{10} emissions become entrained when vehicles pass over the unpaved road or area surface and can also be suspended by natural winds. PM_{10} emissions are a function of speed, meaning reducing speed reduces PM_{10} emissions. There is a linear relationship between speed and emissions; therefore, reducing speed will result in proportional emission reductions.

Restricting access means limiting public access to private roads and equipment areas. That can be achieved by installing a line with a no-trespassing sign, by placing any other type of physical restriction across the road to discourage the use of it, or by signage that limits public access and thru traffic. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, restricting access will discourage the unnecessary use of the unpaved road and reduces emissions. With this concept, it is reasonable to assume that none to very minimal PM_{10} emissions would result from the mechanical disturbance of soil by the tires and vehicle on those unpaved roads and areas during non-agricultural activity.

Water can be used as a control measure on unpaved roads and unpaved equipment areas to reduce PM_{10} emissions. The emissions on these roads and areas result from the mechanical disturbance of soil by the tires and vehicle. Water increases soil particle mass by binding to them and also adds surface tension forces. Even after water evaporation, the properties of the cohesion of water and particles remains due to the formation of aggregates and surface crusts.

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Gravel or other aggregate material can be used as a control measure on unpaved roads and unpaved equipment areas to reduce PM_{10} emissions when vehicle pass over the unpaved road or area surface. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, they can be reduced by changing the surface of the road. Gravel provides a protection similar to a chemical stabilization. It adds a layer that separates the soil surface from the tires and reduces the amount of PM_{10} emissions being suspended in the air. A layer of gravel must be placed at an appropriate depth to minimize emissions.

Applying nontoxic chemical or organic PM_{10} suppressants as a control measure on unpaved roads and unpaved vehicle/equipment traffic areas reduces PM_{10} emissions when vehicle pass over the unpaved road or area surface. These control measures must not be prohibited for use by any applicable regulation and also must meet any specification required by any federal, state, or local water agency. Because PM_{10} emissions result from the mechanical disturbance of soil by the tires and vehicle, they can be reduced by changing the surface of the road either with wet suppression or chemical stabilization. Wet suppression keeps the road surface wet to control emissions. Chemical stabilization tries to change the physical characteristics of the surface. For example, road oil forms a coat over PM_{10} forming a hard crust and also improves the cohesive resistance of road material. It usually can be applied once every two to three months and re-applied several times per year to maintain its efficiency. Other types of PM10 suppressant have high water content to dilution ratios that allows the water to evaporate once applied to the soil and the non-water solution bonds the fine soil particles making them into larger particles; thus making those particles less susceptible to being entrained. Others draw moisture from the environment that acts to keep road surfaces moist, thus holding PM_{10} emissions down. Several studies were performed to evaluate the control effectiveness of PM_{10} suppressants. Two of them were performed in the San Joaquin Valley; one in Fresno County by UC Davis, and the other in Merced County by the Desert Research Institute. These two studies provide the best available data to date. Here's an explanation of the PM_{10} suppressant properties as described by the Desert Research Institute:

- **Salts:** these are hygroscopic compounds such as magnesium chloride or calcium chloride. They absorb water when the relative humidity exceeds about 50%. Water improves the adherence of the soil particles to each other. Salts are often depleted by precipitation and runoff owing to their high solubility.
- **Resin or petroleum emulsion:** these are non-water-soluble organic compounds that are emulsified or suspended in water. When these emulsions are sprayed onto soil, they stick the soil particles together, and eventually harden to form a solid mass. There are several emulsion products based on tree resin, petroleum, or asphalt compounds.
- **Polymers:** these act as adhesives which may be more effective than ordinary resins because their molecular structure is a long chain which in theory may be able to stick to more particles, or bridge larger particle-to-particle gaps.
- **Surfactants**: these reduce water surface tension, allowing available moisture to more effectively wet the particles and aggregates in the surface layer.
- **Bitumens:** these include materials such as asphalt or road oil that effectively pave the surface.
- **Adhesives:** these include lignin sulfonate, a syrupy wood product which creates a sticky but water-soluble layer.
- **Solid materials:** these include a petroleum industry by-product made by mixing recycled materials with earth materials.

Animal Feeding, Waste Handling and Transporting

The daily activities of feeding animals and removing manure require the handling and transportation of large amounts of bulk materials. These activities contribute to PM_{10}. A number of procedures have been identified to reduce these emissions when storing and handling bulk materials.

PM_{10} emissions in animal feeding operations originate from feed, bedding material, and manure, and can depend on several factors such as stocking density, and feeding methods. Emissions result from the disturbance of dry and loose surface caused by animal movement and mechanical disturbances by the tires and vehicle.

Animal Feeding, Waste Handling and Transporting	Control Efficiency
Remove spilled feed from the facility at least once every 14 days	10
Store grain in an enclosed weatherproof storage structure	10
Add oil and/or water to the feed rations to minimize PM10 during feed handling and consumption	10
Distribute feed within the barns in an enclosed feed distribution system	10
Use a flexible discharge spout on the end of the feed truck transfer auger for feed deliveries to the site	10
Minimize drop distance from feed distribution system into feeders (i.e. extension line off of feed distribution system into feeder)	10
Enclose transfer point(s) from the feed storage structure to the in-barn feed distribution system	10
Wash pens, floors, and walls between animal groups to prevent PM10 and manure accumulations	10
Clean aisles between pens and stalls at least twice every 14 days to prevent dried manure, spilled feed, and debris accumulation	10
Store separated solids in a wind-blocked area	10
Stack separated solids to minimize surface area exposure	10
Maintain moisture in solids	10
Maintain liquid lagoon level above solids accumulation in lagoons	10

Swine feed is delivered to the housing unit site premixed. No raw material storage or feed mixing occurs on-site. Swine feed is bulk stored outside of the swine housing units. Bulk feed deliveries occur on an as-needed basis. From the bulk feed storage area, feed is transferred into the housing units as necessary. Once inside of the housing units, the feed is distributed into feeders within each of the pens.

Fugitive particulate matter (PM_{10}) emissions in animal feeding operations can originate from feed and feed transfer. Emissions due to wind can be reduced by minimizing wind contact through use of a flexible discharge spout on the end of the feed truck transfer auger for bulk feed deliveries to the housing units and storing bulk feed inside of weatherproof storage structures. Addition of water and/or oils to feed rations can reduce PM_{10} emissions by binding the small particles to the larger ones in the ration. Emissions can be further reduced through enclosing transfer point(s) from the bulk feed storage structure to the in-barn feed distribution system, distribution of feed within the barns in an enclosed feed distribution system, and minimizing drop distance from the feed distribution system into feeders. All of these practices will reduce emissions by reducing introduction of PM_{10} into the air during feed disturbance by minimizing air contact during feed conveyance. Removing spilled feed from the facility at least once every 14 days will minimize the PM_{10} emissions from air movement across feed spills.

When disturbed by animals or employees, dried manure, PM10, and spilled feed can contribute to PM_{10} emissions. Washing pens, floors, and walls between animal groups will prevent PM10 and manure accumulation. Cleaning aisles between pens and stalls at least twice every 14 days will prevent dried manure, spilled feed, and debris accumulation.

Solids in the swine effluent can be mechanically separated for better nutrient management. Fugitive PM_{10} emissions can originate from the solids and manure stacks. PM_{10} emission can be reduced by stacking separated solids to minimize surface area exposure, minimizing wind exposure. Maintaining moisture in the solids can also reduce PM_{10} emissions by binding the small particles to the larger particles. Maintaining the liquid lagoon level above the solids accumulation in the lagoons will reduce PM_{10} emissions by preventing wind exposure.

Housing

The control of PM_{10} emissions in areas where animals are housed can be broken down into a number of different mitigation strategies. Physical design characteristics of facilities can have a significant impact on reducing PM_{10} emissions. Another area where PM_{10} emissions can be minimized are management procedures that not only optimize operations for efficient production but also take into account each procedures impact on PM_{10} emission reductions.

*We have conservatively assumed a control efficiency of 10 for the BMP "Swine housed in fully enclosed ventilated buildings" based on the assumptions used in the San Joaquin Valley. However, it is certain that the most efficient control factor for PM10 in swine production is in fact such housing.

Housing	Control Efficiency
Swine housed in fully enclosed ventilated buildings	10*
No bedding is used in the production facility	10
Use a slatted floor system to prevent solids build-up	10
Use sloped concrete flooring	10[1]
Clean/wash fans and louvers between animal groups to remove PM10 accumulation	10
Control vegetation on building exteriors to prevent PM10 accumulation	10

Swine are produced outside with shade shelters or inside of fully enclosed temperature regulated housing units with ventilation. The disturbance of surfaces within a pen, by air movement and animal/employee movement, is a source of PM_{10} emissions. PM_{10} emissions can be reduced through PM_{10} mitigation inside and around the housing area.

For outdoor production, the use of flooring can be used to reduce PM_{10} emissions. The use of flooring prevents soil disturbance from animal movement and digging, reducing PM_{10} emissions. Sloped concrete flooring will reduce soil disturbance from animal movement and digging. [1]An assumed control efficiency of 10 was assigned. This control efficiency will be much less than that of slatted flooring due to the dry manure build-up that will occur on a sloped solid concrete floor.

The disturbance of dried solids build-up results in PM_{10} emissions. Slatted or perforated flooring allows effluent from the animals to fall into liquid pits below the floor, minimizing solids build-up within the enclosure. [1] For sloped concrete flooring, an assumed control efficiency of 10 was assigned. This control efficiency will be much less than that of slatted flooring due to the disturbance of dry manure build-up that will occur on a sloped solid concrete floor. PM_{10} emissions from bedding material and solids accumulation are prevented by not using bedding material. The use of bedding results in PM_{10} emissions due to the disturbance and break down of bedding material as well as disturbance of solids accumulation within the bedding material.

In fully enclosed buildings, mechanical ventilation fans accumulate PM10 on the fan blades and louvers as they operate; cleaning/washing fan blades and louvers between animal groups reduces PM_{10} that can break free into the air from the fans and louvers. Vegetation around the housing units can increase PM_{10} emissions by trapping PM10 then dispensing into the atmosphere as air moves across it. Controlling vegetation on building exteriors will prevent PM10 accumulation.

The addition of moisture through coolers on hot days reduces PM_{10} emissions by increasing the moisture level in the air and on surfaces, reducing PM_{10}emissions caused by air movement and animal/employee disturbance. Addition of moisture will also help prevent any solids accumulation from drying out and becoming airborne as PM_{10} during disturbance.

Livestock Best Management Practices to Reduce PM_{10} Emissions Annual Report

Pursuant to this program, each livestock operation regulated under the PM_{10} Best Management Practice (BMP) Program is required to submit to the Best Management Practices Committee, documentation that demonstrates compliance with the BMP program. Using the appropriate form, please check the appropriate box for each Best Management Practice implemented for the reporting year. The form must be submitted by (insert date) of the subsequent year.

ARIZONA PM_{10} BMP – BEEF FEEDLOT FORM XXX

ANNUAL BMP COMPLIANCE REPORT FOR 20__

FACILITY :	CONTACT PERSON :
ADDRESS :	PHONE NUMBER :

Pursuant to the PM_{10} Best Management Practice (BMP) Program, each beef feedlot operation regulated under the PM_{10} BMP Program is required to submit to the Best Management Practices Committee, documentation that demonstrates compliance with the BMP program. Using this form, please check the appropriate box for each Best Management Practice implemented for the reporting year. The form must be submitted by (insert date) of the subsequent year. **Please contact ?????? at (602)-123-4567 if assistance is needed.**

Unpaved Access Connections	☐	Applied and maintained pavement, gravel or asphaltic roadbase
	☐	Speed control devices (e.g., speed bumps).
	☐	Track-out control device used between all unpaved road connection and paved public road.
	☐	Applied and Maintained Dust Suppressants (other than water)
	☐	Applied Water

Arenas, Corrals and Pens	☐	Concrete Aprons (at least 8 ft) in Pen Approaching Feed Bunks
	☐	Concrete Aprons (at least 4 ft) in Pen Approaching Water Troughs
	☐	Provided Shade in Corral to Increase Stocking Density and Suppress Animal Movement
	☐	Added Moisture to Pen Surface via Water Sprinkling (3 to 6 gallons per head/per day - targeting an average of 20% moisture)
	☐	Frequent Manure Removal (every 6 months) leaving an even surface of compacted manure on top of soil
	☐	Piled Manure Between Cleanings
	☐	Increased Stocking Density in corral to increase manure moisture (targeting 20% average moisture across pen surface)
	☐	Fed Higher Moisture Feed (Wet Distiller Grain Solubles) to increase moisture in pens (targeting 20% moisture)
	☐	Controlled Cattle During Movements (So they do not run)
	☐	Planted Tree Windbreaks within 50 to 100 feet of Pen Area
	☐	Applied a Fibrous Layer in Working Areas

Unpaved Roads or Feed Lanes	☐	Installed Engine Speed Governors on Feed Trucks
	☐	Installed Speed Limit Signs Prohibiting Vehicle Speeds in Excess of 15 MPH
	☐	Installed Speed Control Devices (Speed Bumps)
	☐	Restricted Through Traffic (Gates/Signs/or Barriers)
	☐	Sprinkled Water on Roads/Feed lanes
	☐	Oiled Roads (Only legally acceptable substances allowed)
	☐	Gravel, Rock or Grindings on Road
	☐	Paved High Traffic Areas
	☐	Applied and Maintained Dust Suppressants (other than water)

Animal Feeding, Waste Handling	☐	Fed Higher Moisture Feeds
	☐	Added Molasses or Tallow to Feed
	☐	Stored and Maintained Commodities in Bins, Tanks or Commodity Barns
	☐	Loaded Vehicles used to Haul Bulk Materials (including manure) to Prevent Spillage
	☐	Covered Manure Hauling Trucks (Prior to leaving yard)
	☐	Did Not Load Manure when wind exceeded 15 mph

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Signature

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Beef Feedlot

ARIZONA PM_{10} BMP - DAIRY FORM XXXX

ANNUAL BMP COMPLIANCE REPORT FOR 20__

DAIRY FACILITY :	CONTACT PERSON :
ADDRESS :	PHONE NUMBER :

Pursuant to the PM_{10} Best Management Practice (BMP) Program, each dairy operation regulated under the PM_{10} BMP Program is required to submit to the Best Management Practices Committee, documentation that demonstrates compliance with the BMP program. Using this form, please check the appropriate box for each Best Management Practice implemented for the reporting year. The form must be submitted by (insert date) of the subsequent year. **Please contact ?????? at (602)-123-4567 if assistance is needed.**

Unpaved Access

- ☐ Signage that prohibits vehicular speeds in excess of 15 mph.
- ☐ Speed control devices (e.g., speed bumps).
- ☐ Restricted access to thru traffic by signs or gates.
- ☐ Track-out control device used between all unpaved road connection and paved public road.

Arenas, Corrals and Pens

- ☐ Used free-stall housing with concrete surface.
- ☐ Provided shade in corral to increase stocking density.
- ☐ Cattle walkways to milk barn are cemented.
- ☐ Flushed, scraped, or vacuumed lanes daily.
- ☐ Provided cooling in corral to increase stocking density.
- ☐ Added moisture to manure through coolers or fence line spraying during hot dry weather.
- ☐ Frequently removed manure (every 6 months).
- ☐ Scraped and harrowed pens regularly.
- ☐ Used drag equipment instead of push equipment to maintain pens.
- ☐ Piled manure between cleanings.
- ☐ Increased stocking density in corral to increase manure moisture.
- ☐ Fed green-chop to increase wetness of manure in corral.
- ☐ Kept calves in barns or hutches (under two months of age).
- ☐ Did not run cattle.
- ☐ Utilized tree windbreak.
- ☐ Stacked hay to create windbreak.

Unpaved Roads or Feed Lanes

- ☐ Engine speed governors on vehicles used exclusively at dairy. Control to 15mph.
- ☐ Signage that prohibits vehicular speeds in excess of 15 mph.
- ☐ Speed control devices (e.g., speed bumps).
- ☐ Restricted access to thru traffic by signs or gates.
- ☐ Watered roads.
- ☐ Oiled roads.
- ☐ Used gravel, rock, grindings on roads.
- ☐ High traffic areas are paved.
- ☐ Applied dust suppressants.
- ☐ Used appropriate vehicles instead of trucks.
- ☐ Lanes are paved or cemented.

Animal Feeding, Waste Handling

- ☐ Fed high moisture feeds (e.g., green-chop, silage).
- ☐ Added water to ration mix to achieve a 20% min. moisture level.
- ☐ Added molasses or tallow to ration mix at a minimum of 1%.
- ☐ Stored commodities in bins, tanks, or commodity barns.
- ☐ Covered all silage piles (except feeding face).
- ☐ Stored silage in bunkers.
- ☐ Covered manure hauling trucks prior to exiting dairy.
- ☐ Did not load manure trucks with dry manure when wind exceeded 25 mph.

Signature

Dairy

ARIZONA PM_{10} BMP - SWINE FORM XXXX

ANNUAL BMP COMPLIANCE REPORT FOR 20__

SWINE FACILITY :	CONTACT PERSON :
ADDRESS:	PHONE NUMBER:

Pursuant to the PM_{10} Best Management Practice (BMP) Program, each swine facility regulated under the PM_{10} BMP Program is required to submit to the Best Management Practices Committee, documentation that demonstrates compliance with the BMP program. Using this form, please check the appropriate box for each BMP implemented for the reporting year. The form must be submitted by March 31 of the subsequent year. **Please contact ?????? at (602)-123-4567 if assistance is needed.**

Unpaved Access Connections

☐ Install vehicular speed limit signs (15 miles per hour, 25 miles per hour).

☐ Speed control devices (e.g., speed bumps).

☐ Restricted access to thru traffic by signs or gates.

☐ Track-out control device used between all unpaved road connection and paved public road.

Animal Feeding, Waste Handling and Transportation

☐ Remove spilled feed from the facility at least once every 14 days

☐ Store grain in an enclosed weatherproof storage structure

☐ Add oil and/or water to the feed rations to minimize PM_{10} during feed handling and consumption

☐ Distribute feed within barns in enclosed distribution system.

☐ Use flexible discharge spout on end of feed truck transfer auger for feed deliveries to the site.

☐ Minimize drop distance from feed distribution system into feeders.

☐ Enclose transfer points from feed storage structure to the in-barn distribution system.

☐ Wash pens, floors and wall between animal groups to remove PM_{10} and manure accumulations

☐ Clean aisles between pens and stalls at least twice every 14 days to prevent dried manure, spilled feed, and debris accumulation.

☐ Store separated solids in a wind-blocked area.

☐ Stack separated solids to minimize surface area exposure

☐ Maintain moisture in solids

☐ Maintain liquid lagoon level above solids accumulation in lagoons.

Unpaved Roads/Equipment Areas

☐ Install vehicular speed limit signs (15 miles per hour, 25 miles per hour).

☐ Speed control devices (e.g., speed bumps).

☐ Restricted access to thru traffic by signs or gates.

☐ Maintain roads in manner that inhibits vehicular speeds (15mph, 25mph)

☐ Apply PM10 suppressant(s) on roads (polymers, road oil, water).

☐ Install wind barriers along road side.

☐ Use gravel, rock, or grindings.

Housing

☐ Swine housed in fully enclosed ventilated buildings

☐ No bedding is used in the production facility.

☐ Use a slatted floor system to prevent solids build-up

☐ Use sloped concrete flooring

☐ Clean/wash fans, louvers, and soffit inlets between animal groups to remove PM_{10} accumulations

☐ Control vegetation on building exteriors to prevent PM_{10} accumulation

☐ Add moisture to through coolers in housing on dry hot days

Signature and Date

Swine facility

ARIZONA PM$_{10}$ BMP - POULTRY FORM XXXX
ANNUAL BMP COMPLIANCE REPORT FOR 20__

POULTRY FACILITY :	CONTACT PERSON :
ADDRESS:	PHONE NUMBER:

Pursuant to the PM$_{10}$ Best Management Practice (BMP) Program, each poultry facility regulated under the PM$_{10}$ BMP Program is required to submit to the Best Management Practices Committee, documentation that demonstrates compliance with the BMP program. Using this form, please check the appropriate box for each BMP implemented for the reporting year. The form must be submitted by (insert date) of the subsequent year. **Please contact ?????? at (602)-123-4567 if assistance is needed.**

Unpaved Access Connections

- ☐ Signage that prohibits vehicular speeds in excess of 15 mph.
- ☐ Speed control devices (e.g., speed bumps, closed gates).
- ☐ Restricted access to thru traffic by signs or gates.
- ☐ Track-out control device used between all unpaved road connection and paved public road.

Housing

- ☐ Clean/wash fans, louvers, and soffit inlets between animal groups to remove PM$_{10}$ accumulations
- ☐ No bedding is used in the production facility.
- ☐ Control vegetation on building exteriors to prevent PM$_{10}$ accumulation
- ☐ Add moisture to through coolers in housing on dry hot days
- ☐ Poultry housed in fully enclosed ventilated building

Unpaved Roads/Equipment Areas

- ☐ Signage that prohibits vehicular speeds in excess of 15 mph.
- ☐ Restricted access to thru traffic by signs or gates.
- ☐ Sprinkle water
- ☐ Use gravel, rock, or grindings.

Animal Feeding, Waste Handling and Transportation

- ☐ Remove spilled feed from the facility at least once every 14 days
- ☐ Store feed in an enclosed weatherproof storage structure
- ☐ Add oil and/or water to the feed rations to minimize PM$_{10}$ during feed handling and consumption
- ☐ Distribute feed within houses in enclosed distribution system
- ☐ Use flexible discharge spout on end of feed truck transfer auger for feed deliveries to the site.
- ☐ Minimize drop distance from feed distribution system into feeders.
- ☐ Enclose transfer points from feed storage structure to the in house distribution system.
- ☐ Wash floors and wall between animal groups to remover PM$_{10}$ and manure accumulations
- ☐ Clean aisles between cage rows at least twice every 14 days to prevent dried manure, spilled feed, and debris accumulation.
- ☐ Stack separated solids to minimize surface area exposure
- ☐ Maintain moisture in solids

____
Signature and Date

____
Poultry facility

Mr. WHITFIELD. Thank you.

Mr. GARDNER. And it seems that based on these documents, the results of the PM_{10} standard that are set by the EPA that you currently regulate farm dust. That is what these documents are here for because of the regulations on dust that occurs in agriculture, farm dust. Now, I understand, I live in Colorado, it is very dry. I would love to ban dust. It seems like that is all we do is dust. We have worn the coffee table out with it. But I was just curious, your statement, and I have heard others say it is a myth that EPA is trying to regulate dust but you already do. Is that correct?

Ms. MCCARTHY. Actually, we establish health-based standards. It is up to the States and the local communities to determine what is most appropriate to regulate.

Mr. GARDNER. But that is on dust, right? You do regulate dust?

Ms. MCCARTHY. We establish National Ambient Air Quality Standards——

Mr. GARDNER. The answer is yes, you regulate dust? I mean, that is why you have these best management practices here that are about farm dust.

Ms. MCCARTHY. I believe that that is a regulation in Arizona and it being——

Mr. GARDNER. So Arizona just has this regulation, not because of the EPA?

Ms. MCCARTHY. No, it is very directly a linkage because of the health consequences associated with coarse particles, some of which may be from farms if they determine that there is significant——

Mr. GARDNER. Which is farm dust and so you are causing them to regulate farm dust?

Ms. MCCARTHY. We could probably continue this for a while but I do not—we do not directly regulate farm dust. We have no farm dust regulations. What we have is National Ambient Air Quality Standards that regulate coarse and fine particles, which many businesses, industries as well as some agricultural——

Mr. GARDNER. So let me rephrase my question. Do you regulate dust from farms? Maybe that is a different question. You know, farm dust, maybe there is no specific category for defining farm dust but do you regulate dust from farms?

Ms. MCCARTHY. I really am not trying to be evasive. Let me tell you how——

Mr. GARDNER. But, see, the problem here is that what my district sees. This district is the 11th largest ag-producing district in this Congress out of 435. It is not fairy dust to them. This is a very real issue.

Ms. MCCARTHY. I am not suggesting this is not a serious issue.

Mr. GARDNER. EPA also suggested that they weren't going to regulate milk from dairies but they had to actually put something in there—milk spills at dairies but they had to put something in the Federal regulations saying they weren't going to regulate milk spills. You can see the problem that we face when it comes to the EPA and how our farmers and ranchers are trying to deal with it. We have best management practices from States that are dealing with the regulation of dust from farms. Now, whether that is farm dust or not, maybe that is a point of distinction.

Ms. MCCARTHY. In areas where farm dust contributes to non-attainment and imposes health concerns in those communities, there is certainly both a right and an obligation to take a look at those issues and to see if there are cost-effective practices that can be put in place that would reduce the health consequences associated with those emissions. But so I don't see anything wrong with that. In fact, I see that as a good practice to continue.

Mr. GARDNER. So do you think there should be regulations on dust from farms?

Ms. MCCARTHY. I believe that there should be regulations on coarse particles, and coarse particles, no matter where they are emitted from, can be reduced in areas where they are causing a health burden that they should be reduced if they can be done cost-effectively——

Mr. GARDNER. So the answer is yes——

Ms. MCCARTHY [continuing]. And practically.

Mr. GARDNER [continuing]. Dust from farms ought to be regulated?

Ms. MCCARTHY. I did not say that, no.

Mr. WHITFIELD. The gentleman's time is up.

At this time I recognize Mr. Pompeo of Kansas for 5 minutes.

Mr. POMPEO. Thank you, Mr. Chairman. Thank you, Ms. McCarthy, for being here today.

I want to spend time on the statute but first I do want to clarify. Mr. Markey didn't take this very seriously. He talked about fairy dust. He talked about myths and fake Congressmen and fictitious things. Do you agree with him? Is this a myth? Are the 100 folks who signed that letter in support and everybody who talks to me back in Kansas, are they irrational, ignorant or just sadly mislead?

Ms. MCCARTHY. I think there are many misunderstandings here, and there are complexities here that people don't understand. I certainly understand——

Mr. POMPEO. So they are ignorant?

Ms. MCCARTHY [continuing]. That the agricultural community is concerned. I do recognize the importance of the agricultural community, and we certainly don't want EPA to look like it is adding burden on the farming community when in essence the Administrator has clearly said she has no intention of proposing a change in this PM standard. All of that is very real.

Mr. POMPEO. I appreciate that. So you disagree with Mr. Markey? You take this seriously?

Ms. MCCARTHY. I take my job very seriously.

Mr. POMPEO. I appreciate that.

I want to talk about what the proposed legislation does and what it does not do. Mr. Waxman talked about this eviscerating, gutting the Clean Air Act. I think that is the 57th time I have heard that in 10 months. Everything we do guts the Clean Air Act. He talked about taking away, eliminating regulations. This doesn't eliminate any regulation. This just gives the States the ability to do it, and if they don't do it adequately, you can come in and clean up their mess. Isn't that right? As I read this language, isn't that exactly what it says? This doesn't deny anybody's ability to regulate this coarse particulate matter. It just says we are going to give that to the States, and if you don't get it right, we will come in and make an adverse health finding, we will do a cost-benefit analysis and Ms. McCarthy will come in and clean up the mess, right?

Ms. MCCARTHY. I think that if what you are saying is right, what you are saying is rolling back national standards, health standards that are necessary for public health protection. You are talking about giving those to local communities or States that certainly don't have the scientific or the resource wherewithal to be able to make this happen. So I would say in essence you are actually gutting the Clean Air Act.

Mr. POMPEO. Wow. So you think the States are completely incapable of making sure they can take care of the health of Kansas. My Governor, Governor Brownback and his Kansas Department of Health and Environment, are incapable of protecting the health of their citizens?

Ms. MCCARTHY. Actually, I would——

Mr. POMPEO. They don't have the resources. You said they don't have the resources or the scientific knowledge out in flyover country?

Ms. MCCARTHY. I would say that the way in which nuisance dust is defined here in what you would need to do to regulate it is potentially beyond the wherewithal of EPA and our scientists at this point in time, and I certainly wouldn't want that burden imposed on States and local communities.

Mr. POMPEO. Last point. So I think it was Mr. Waxman and you had a little colloquy about all the horrors that could follow. We could have school buses killing children, large open pit mining exemptions, and you said that this language might prevent the EPA from regulating those. This really isn't a question. This is a statement and my observation. You have never let statutory language get in the way of your efforts to regulate things. We have made things clear. We make them explicit and you run through stop signs. And so here we have got language which doesn't talk about school buses and yet you and Mr. Waxman say that this is going to allow school buses to do great harm. Do you really believe that this language would preclude you from doing those kinds of regulation for power sources and for school buses? My question is, do you believe that this language would preclude you?

Ms. MCCARTHY. I believe that it very well could.

Mr. POMPEO. It very well could?

Ms. MCCARTHY. Yes.

Mr. POMPEO. So you would sit with your team and you would say I don't think we can do that?

Ms. MCCARTHY. Well, one of the issues is, I am trying to understand what it was intended to do. Was it intended to do that?

Mr. POMPEO. Well, you said before, it doesn't matter, right? You said what does the language do. I think it is very clear what the language does. This language grants the rights to the States to regulate this and keep their folks safe, and then if there are health adverse health effects and if a cost-benefit analysis is completed, you all can go fix it. So I think it is very clear. We are trying to prevent EPA from doing not what an imaginary Congressman said they would do and not what some silly email chain that was fraudulent centered on but what your EPA staff said they were considering.

Ms. MCCARTHY. So this bill is actually intended not just to prevent the Administrator from ever being able to advance or enhance regulation of farm dust or coarse particles, it is actually intended to roll back 24 years of history in regulating coarse particles that started with the Reagan administration, that continued to the Bush administration, that protects public health today. That is the intent of this bill.

Mr. POMPEO. My time is up. It is intended to do precisely what it says it will do. It is intended to stop the EPA from regulating farm dust, and I yield back the balance of my time.

Mr. WHITFIELD. At this time I recognize the gentleman from Virginia, Mr. Griffith, for 5 minutes.

Mr. GRIFFITH. Thank you, Mr. Chairman.

All right. Let us get back into this and we will pick up right where we left off with Mr. Pompeo, because I am trying to figure it out, and I don't think that the intent of this bill is to do any of the things that you think it is intended or that you were trying to imply that Mr. Pompeo was saying it is going to do. I think it is regulating farm dust. That being said, would you all support this bill if you changed on line 15, page 3—do you have the bill in front of you, ma'am?

Ms. MCCARTHY. I do have it in front of me somewhere. Yes, I have it.

Mr. GRIFFITH. If you changed on line 15—and I am not speaking for the patrons, I am just asking. On line 15, if you change the "or" to an "and", wouldn't that resolve all of your semantic problems or all of your language problems?

Ms. MCCARTHY. I am really not prepared at this time to negotiate the bill. What I will say is that I think that in——

Mr. GRIFFITH. Just look at the plain language of the bill. If you put an "and" there, there is no way anybody on earth could interpret that that would allow mining. Isn't that correct?

Ms. MCCARTHY. I do not know the answer. I can certainly go back and take a look at it.

Mr. GRIFFITH. All right. Let us talk about this——

Ms. MCCARTHY. Could I just point out, one of the confusing things in the definition, it is——

Mr. GRIFFITH. I will take back my time, ma'am.

Ms. MCCARTHY. OK. I am sorry.

Mr. GRIFFITH. You know, I think most of us over here were offended by the fairy dust comment, and I was concerned about it enough that I got Representative Hurt to bring me his language, and apparently in his district, there was a farmer who has already been warned by a State regulator. Now, you indicated you weren't aware of State regulations in Virginia, and I am happy to share those with you, if you would like, and these are the regs, not the underlying law but the regs in Virginia which talk about fugitive dust, and I guess what I want to know is, is that based on your earlier testimony, my impression is, is that you have all indicated to the States that this is the direction that they should go in. Is that not correct? You have indicated to the States that they should be regulating fugitive dust from agricultural sites? Is that not correct?

Ms. McCarthy. Not that I am aware of. In fact, even in the coarse particulate standard, our monitoring that we base our nonattainment decisions on is focused on urban areas. It is both focused on where there is the highest levels of pollution as well as where there is most population exposed. So we do not focus on rural areas as we implement that standard. So——

Mr. Griffith. But as you have indicated, as time goes by, if there a coarse particulate matter issue, you all are going to go in and regulate that. And I guess one of my concerns is, is that in regard to another set of regulations, not this one, back when I served in the Virginia legislature on the Virginia Joint Commission on Administrative Rules and Regulations, we had an issue that came up and it looked like it was Virginia enacting something that we just thought was foolish, and when we pushed on it, they said well, we have been told by the EPA we have to do this. This was stormwater management. And we said well, bring them in, and the EPA came in and basically said that, you know, Virginia didn't have any rights even outside of the Chesapeake Bay area and that they were going to force us to do it one way or another. And so I want to know, are we dealing with the same kind of situation with dust? Are you all going to tell the States that they have to do this or you're going to come in and tell them how to do it?

Ms. McCarthy. This is a National Ambient Air Quality Standard. That means that when States are implementing the program, they make their own judgments about what is cost-effective in terms of an implementation strategy for their States, and to the extent that it is lawful, EPA respects that judgment.

Mr. Griffith. Since this bill at this time only has a 1-year time limit or time period in it and you all have indicated that you are not planning to go forward with any new regulations on agricultural dust, why the opposition? Why don't you join in and support the bill?

Ms. McCarthy. Actually, it has two sections. The first one is the one that talks about a 1-year limit, but it is really not limited to coarse particles. It really spills into our ability to regulate fine particles. And section 3 really attempts to exempt nuisance dust from regulation altogether, and because of how broadly that is defined, it can certainly leak into all areas of the Clean Air Act and prevent us from being able to maintain the kind of health standards we have had for decades and the protections that the American people expect.

Mr. Griffith. But you do understand why people, as Mr. Gardner pointed out and others, why people are a little gun-shy when it comes to the EPA because we have seen things that don't make sense and we had had, in fairness, the States have been run roughshod at times by the EPA, and so when we hear some of these things, we don't always necessarily feel comfortable with it and we may at some point reach a level of trust but we are always going to have to verify.

Thank you. I yield back my time.

Mr. Whitfield. At this time the chair recognizes the gentlelady Ms. McMorris Rodgers for 5 minutes from Washington State.

Mrs. McMorris Rodgers. Thank you, Mr. Chairman. I appreciate the time and I appreciate Ms. McCarthy for being here. You know, I too am struggling with the long list of regulations that have been proposed by the EPA administration this year, and at a time when unemployment in this country is at a record high, we continue to face one regulation after another that is making it, if not difficult, impossible for people to comply. I had someone in my office just the other day who said Cathy, the only way we can comply with the long list of regulations coming out of EPA is to simply not operate, and that is the fear that our farmers and ranchers face right now, and it seems that the administration is moving forward without the scientific, proven health benefits of many of these regulations.

Now, 5 years ago, EPA concluded that the current PMT standard was appropriate, and yet today in many regions, they are still striving to comply with that standard. And that is why it makes us a little perplexed as to why earlier in the year EPA was recommending a stricter standard, and so in eastern Washington, whether we are working in the fields or herding our cattle or driving down a dirt road, dust is going to be kicked up, and that farm dust is a byproduct of American labor, not an air pollutant. So I understand that the Administrator has stated that the current standard, which has been in effect since 1987, will be continued. However, I too believe that farmers and ranchers in eastern Washington need more certainty. So I wanted to ask you, what made EPA go from earlier in the year proposing to exempt agriculture and mining to finalizing a standard that does not exempt them?

Ms. MCCARTHY. Actually, that was an action that the Bush administration proposed in 2005 when it was doing its NAAQS review of the PM standard. They did propose to exempt agriculture from regulation. On the basis of all the comments that the Bush administration heard, they believed that the science was strongly indicating that it needed to be included within the definition of coarse particles and they didn't exempt it. That was not this administration, that was the Bush administration. And EPA has yet to propose anything. And if and when we do, the Administrator has made it clear what she intends to propose. When that is finalized if that is challenged and it goes to court, if we lose that challenge we re-look at the NAAQS, but you are in no immediate danger of actually happening.

Mrs. MCMORRIS RODGERS. But earlier in the year, you were proposing different standards, so what made you change——

Ms. MCCARTHY. We actually had never proposed anything. What we were proposing on PM_{10} was to wait for the Integrated Science Assessment. The Clean Air Science Advisory Committee did propose that the Administrator consider changing both the standard and form, which really wouldn't have made the standard more stringent but it would have changed levels of protection in the country, and when the staff looked at that, they believed that the data wasn't certain enough to warrant a recommendation solely to revise so the staff actually proposed two recommendations, one to keep it and one to revise it. When the Administrator looked at that, as she indicated in her letter, her assessment was that the science wasn't certain enough to warrant a change in the form and standard and that she was going to propose retaining that standard. That is how it has worked out. And there has been a lot of misunderstanding. So I apologize, but we did not—we have not put out a proposal in this administration relative to PM_{10} or 2.5.

Mrs. MCMORRIS RODGERS. It feels like the administration continues to flip-flop, though, on where they are going to be on possibly proposing and when they might come, and so I guess I just want to also—it just begs the question, why are you opposing what is a very simple bill to clarify and send a clear signal to our farmers and ranchers that farm dust that is stirred up while they are working in the fields will not be regulated?

Ms. MCCARTHY. I tried to make it clear that that is not what this bill says or does.

Mrs. MCMORRIS RODGERS. Would you be willing to—would you give us your recommendations on how we could write that bill?

Ms. MCCARTHY. We would certainly provide any assistance we can to the committee and that the chairman asks us to provide. I will tell you that it is a little baffling to me, because generally I am here because we are proposing to do something that you disagree with. Now we are proposing to do something that you agree with, and I am still here. There is got to be something we can do that——

Mr. WHITFIELD. We like you, Ms. McCarthy.

Mrs. MCMORRIS RODGERS. It is the fear of what you might do in this example.

Ms. MCCARTHY. But in one case, the fear is that the Administrator will be proposing something and it is sure to happen. In this case, the Administrator may be proposing something and you don't think it is going to happen. The Administrator has been really clear. She is given this discretion under the law, and she will use that discretion wisely and she has made it clear the direction that we are heading.

Mrs. MCMORRIS RODGERS. We have heard you say many times today "at this point in time" and we don't know when that might change.

I yield back.

Mr. RUSH. Mr. Chairman, on that note, I would, if I could, ask unanimous consent to enter into the record the EPA technical assistance letter requested by myself and Ranking Member Waxman.

Mr. WHITFIELD. Without objection.

[The information follows:]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 24 2011

OFFICE OF CONGRESSIONAL AND
INTERGOVERNMENTAL RELATIONS

The Honorable Bobby L. Rush
Ranking Member
Subcommittee on Energy and Power
Committee on Energy and Commerce
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressman Rush:

Thank you for your October 21, 2011, letter to the EPA in which you asked the EPA to review H.R. 1633, the Farm Dust Regulation and Prevention Act of 2011, and provide technical assistance on the legislation's legal and substantive implications for the EPA's ability to regulate particle pollution.

Please see attached for the EPA's technical assistance. If you have any questions, please contact me, or your staff may contact Diann Frantz in my office at (202) 564-3668.

Sincerely,

Arvin Ganesan
Associate Administrator

Enclosure

TECHNICAL ASSISTANCE ON H.R. 1633

OCTOBER 2011

These comments are being provided to Committee staff solely as EPA technical drafting assistance. The comments should not be construed in any way as any position of the Agency or the Administration on this bill.

As requested, we are providing technical assistance on H.R. 1633. As drafted, H.R.1633 has the potential to be interpreted very broadly in ways that could significantly limit Clean Air Act public health protections. It is unclear whether these potential consequences are intended. If the potential consequences described below are not intended, it would be best to clarify and revise the bill to avoid the confusion and litigation that would occur if this bill were enacted.

Section 2:

Effect on Coarse Particle Standard: Section 2 of the bill would prohibit the EPA from proposing, finalizing, implementing, or enforcing any regulation revising any ambient air quality standard for coarse particles in the next year. This would be consistent with the Administrator's announcement regarding her commitment to send to OMB a proposal that would retain, not revise, the existing coarse particle standard.

Effect on Fine Particle Standard: Section 2 of the bill could be interpreted to prevent the EPA from proposing, finalizing, implementing or enforcing a regulation revising the fine particle standards in the next year. Even though section 2 only precludes revisions to ambient air quality standards applicable to particulate matter with an aerodynamic diameter greater than 2.5 micrometers, EPA regulates fine particles in a way that includes some particles that have an aerodynamic diameter greater than 2.5 micrometers.[1]

Section 3:

General Description: With one exception discussed below, under H.R. 1633, the Clean Air Act would no longer apply to "nuisance dust," and any references in the Act to "particulate matter" would not include "nuisance dust." Section 3(c) defines "nuisance dust" very broadly to include both "particulate matter generated from" a variety of sources including "other activities typically conducted in rural areas" and "particulate matter consisting primarily of soil, other natural or biological materials, windblown dust, or some combination thereof."

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[1] The standards apply to particles measured by monitors that are designed to mimic the size selective performance of the human respiratory system, which does not have a perfectly sharp cutpoint. The vast majority of particles measured by fine particle monitors are 2.5 micrometers and smaller, but about 1 percent of the measured particles (by mass) is larger (up to 4 micrometers).

Key points:

- The effect of the bill is not limited to the ambient air quality standards program; on its face the bill applies across the entire Clean Air Act.
- "Nuisance dust" is not defined by particle size; it would include both fine and coarse particles.
- While "nuisance dust" includes soil, other natural or biological materials, and windblown dust, it is not limited to those substances.
- The exclusion of certain particulate matter from the Clean Air Act applies regardless of where the pollution is located or where it was emitted. The exclusion is not limited to particulate matter emitted in rural areas.
- The exclusion from the Clean Air Act is not limited to particulate matter directly emitted by a source, it also includes particulate matter "generated" by the source. The term "generated" is undefined, but arguably could be broad enough to include emissions of pollutants (such as sulfur dioxide and nitrogen dioxide) that form fine particle pollution after they are emitted from the source .
- If an activity is "typically conducted in rural areas," then particulate matter generated by that type of activity anywhere in the country arguably is not subject to the Act, no matter where the activity actually occurs.

Section 3(b) is an exception that would provide authority for Clean Air Act regulation in geographic areas in which "nuisance dust" (or a subcategory) is not regulated under State, tribal, or local law if the Administrator finds that "nuisance dust" (or a subcategory) causes substantial adverse public health and welfare effects at ambient concentrations and the benefits of regulating the "nuisance dust" outweigh the costs. The ability to meet the requirements to use this exception appears quite limited. Most areas will have regulation of some subcategories of "nuisance dust." Thus, to use the exception, analyses would appear to be required for subcategories of nuisance dust in specific geographic regions. If the data even exists to do such analyses, they would likely be very expensive and time-consuming.

Effect on fine and coarse particle ambient air quality programs: Section 3 raises serious issues about whether the EPA could continue to implement the existing fine and coarse particle pollution programs because these programs currently apply, at least in part, to pollution to which the Clean Air Act would no longer apply. Section 3 also raises serious concerns about whether the EPA could ever adopt or implement revised fine or coarse particle standards. For example, it is unclear how to design a monitor that measures "fine particles except for nuisance dust." Without scientifically sound monitors, it is unclear how one could set, implement or enforce an ambient air quality standard for particulate matter.

Effect on other clean air programs: Section 3's bar of Clean Air Act regulations governing particulate matter generated from "activities typically conducted in rural areas" is sweeping. If an activity is of a type that typically occurs in rural areas, it appears that particulate matter from that activity anywhere in the country is exempt from the Clean Air Act. For example, burning coal to generate electricity, mining operations, and other industrial activities arguably are "activities typically conducted in rural areas." Section 3 would appear to preclude EPA from regulating particulate emissions from power plants, mining operations, or at least some other industrial activities *anywhere* across the country (subject to the section 3(b) exception).

H.R. 1633 could prevent Clean Air Act regulation of pollution that is particulate matter even if EPA currently has authority to regulate it because it is an air toxic or for some other reason. This is because instead of taking away Clean Air Act authority to issue certain types of regulations (e.g., particulate matter emission limits), H.R. 1633 takes certain types of particulate matter out of the entire Clean Air Act. Arguably, this focus on exempting the substance from Clean Air Act regulation would preclude regulation of mercury, other metals and other air toxics if those emissions are in the form of particulate matter and come from an activity typically conducted in a rural area. Thus, this bill could, for example, forever bar EPA from regulating mercury from coal-fired power plants based on the argument that mercury is emitted as particulate matter from coal-fired power plants, and burning coal to generate electricity is an activity typically occurring in rural areas.

Section 3 arguably would also take away Clean Air Act authority to regulate emissions from some sources of pollutants such as nitrogen oxides and sulfur dioxides (NOx and SOx) that are not particulate matter when emitted, but that lead to the formation of particle pollution in the atmosphere. This argument is based on section 3(c)'s definition of "nuisance dust" as "particulate matter *generated from* . . . . activities typically occurring in rural areas." Under this interpretation, EPA would not be allowed to regulate NOx and SOx emissions from any coal-fired power plants anywhere across the country. In addition to barring EPA from ever requiring future power plant reductions of NOx and SOx, this could call into question EPA's ability to enforce Clean Air Act regulations and permit emission limits that have been on the books for decades.

Section 3 does not appear to be limited to stationary sources. Driving cars and trucks is an activity typically conducted in rural areas. EPA currently controls those emissions by setting tailpipe standards for new vehicles and engines. Under H.R. 1633, however, the Clean Air Act would no longer apply to particulate matter generated from running a car or truck. As a result, H.R. 1633 calls into question our ability to set tailpipe emissions standards for new vehicles or engines to limit their fine particulate pollution, as well as our ability to enforce existing particulate standards for new vehicles or engines.

Mr. WHITFIELD. Thank you so much.

At this time I recognize the gentleman from California, Mr. Bilbray, for 5 minutes.

Mr. BILBRAY. Thank you very much, Mr. Chairman.

I was sort of taken back by comments made by the gentleman from Santa Monica that somehow there is no regulation on farming and nobody is proposing regulations on farming and that the whole concept of regulating farming is a myth, and I would like you to kind of, you know, bring me back up to speed. It has been a while since I have been in the clean air, you know, game. Wasn't there or isn't there an ongoing program to reduce silicone emissions in the western San Joaquin Valley?

Ms. MCCARTHY. Yes, there is.

Mr. BILBRAY. And that is PM_{10}, ma'am, and 2.5?

Ms. MCCARTHY. Yes, that is true.

Mr. BILBRAY. OK. So isn't there also an ongoing program to reduce or eliminate the use of gravel or the use of gravel roads in the Sierra Nevada because of the dust potential with serpentine being used as the gravel?

Ms. MCCARTHY. I am not aware of that. I apologize.

Mr. BILBRAY. OK. If you could ask your staff to take a look at that.

And then the Owens Valley is a very rural, very isolated area. Have they abandoned their concept of particulate management in the Owens Valley?

Ms. MCCARTHY. No, there are many areas in California that are out of attainment of those standards and that work with the agricultural and other communities to try to reduce dust.

Mr. BILBRAY. So for the record, there has been historically intervention in a rural area by regulatory agencies to control and regulate both PM_{10} and 2.5?

Ms. MCCARTHY. Yes.

Mr. BILBRAY. OK. I just want to make that clear because the reference was like nobody has ever done this, we are not talking about this, and the fact is, when somebody out in the West starts talking about this, you know, let me tell you, the gentleman from Santa Monica is saying in our own State we have had extensive impact on ag and rural area impacts in our clean air management, and I think it is disingenuous to tell the rest of the country that these things haven't happened and won't happen and don't be worried about it. I think there is a very real situation that we ought to be open and frank about and not try to deny the fact that there is a real potential, either now or in the future, that farming operations, that rural activities will be severely impacted in their traditional historical manner of operation because we are looking at addressing both of these particulate issues. Is that fair to say?

Ms. MCCARTHY. I am sorry. I think I sort of——

Mr. BILBRAY. Is it fair to say that from the history of what we have done in other parts of this country to manage the particulate issue that it is unfair to tell the people in the rest of rural America that there is no way they are going to be impacted, no way that their operations may be modified?

Ms. MCCARTHY. Ever? I certainly would never make that claim one way or the other.

Mr. BILBRAY. I just—farming has been curtailed in California in certain areas during certain times of the year. Farming has been impacted. The use of water and the way the water was distributed in a State that is dying for water has been impacted through this management practices on this, and I just think we need to clarify that, you know, there is this issue of once you justify taking action on the item, you do not say rural, urban has a different game. You do not say farming will be protected in our implementation. Everybody is thrown into the pile. There is no guarantee that traditional agricultural activities will not be severely impacted once you start implementing the programs, right?

Ms. MCCARTHY. You look at all sources of pollution. I will say in terms of agriculture that how the States and local air districts have worked with USDA and the agriculture community has actually be very collaborative, and in the San Joaquin Valley, as far as I know, it has been enormously successful.

Mr. BILBRAY. Well, I think that if we see the impact and a lot of the concerns over there, and the Owens Valley is the other one that still is a real issue of do we use our water to feed our cities and our crops or do we use the water to spray over the Owens Valley to reduce the particulate matter. That is the kind of catch-22 that we get into.

Ms. MCCARTHY. One of the reasons why we work with USDA is there are a number of strategies that the farming community can employ. Many of them are supported by——

Mr. BILBRAY. To interrupt, I want to make it clear. You made a statement that this impacts urban areas, and I think you want to correct that. It does not only urban areas. Rural areas are impacted severely with the PM_{10} and 2.5 and the potential. A nonattainment area does not know if it is an urban area or rural area. Nonattainment areas are managed as one proposal.

Ms. MCCARTHY. May I clarify the point I was trying to make?

Mr. BILBRAY. Yes.

Ms. MCCARTHY. I am sorry.

Mr. WHITFIELD. Go ahead.

Ms. MCCARTHY. Very quickly. What I was talking about is how you identify nonattainment areas. We monitor nonattainment areas. We don't model them. Our monitoring is focused on areas where you have both high levels as well as high population density. So even in the areas that you are talking about, they are surrounding high population density areas, although the rural areas may come in as part of the nonattainment area.

Mr. BILBRAY. Excuse me, ma'am. The Central Valley is not an urban area, and the great majority is nonattainment. I yield back.

Mr. WHITFIELD. Ms. McCarthy, you raised an interesting issue on the monitors. Would you provide the committee with a list of where monitors are located by State and how that is determined?

Ms. MCCARTHY. Of course.

Mr. WHITFIELD. Thank you.

It looks like there are no more questions, so Ms. McCarthy, thanks very much for being with us today. We appreciate your time and look forward to working with you as we move forward.

At this time I would like to call up the third panel. On the third panel, we have seven witnesses. First, Mr. Steve Foglesong, who is a ranch owner of the Black Gold Cattle Company and immediate past President of the National Cattlemen's Beef Association. We have Mr. Kevin Rogers, who is the President of the Arizona Farm Bureau, who is testifying on behalf of the American Farm Bureau. We have Mr. Pete Lien, who is the President of Pete Lien and Sons, Inc., who is testifying on behalf of National Stone, Sand and Gravel Association. We have Mr. Till von Wachter, PhD, Associate Professor of Economics at Columbia University. We have Mr. John Walke, who is Senior Attorney and Director of the Clean Air Program at the Natural Resources Defense Council. And we have Gregory Wellenius, who is Assistant Professor of Community Health at Brown University.

So I want to thank all of you for joining us this afternoon to discuss H.R. 1633 and the regulation of particulate matter. We look forward to your testimony. Each one of you will be recognized for 5 minutes for your opening statement, and so Mr. Foglesong, we will start with you and you will be recognized for 5 minutes, and be sure and turn your microphone on.

STATEMENTS OF STEVE FOGLESONG, RANCH OWNER, BLACK GOLD CATTLE COMPANY, ON BEHALF OF NATIONAL CATTLEMEN'S BEEF ASSOCIATION; KEVIN ROGERS, PRESIDENT, ARIZONA FARM BUREAU FEDERATION, ON BEHALF OF AMERICAN FARM BUREAU FEDERATION; PETE LIEN, PRESIDENT, PETER LIEN & SONS, INC., ON BEHALF OF NATIONAL STONE, SAND AND GRAVEL ASSOCIATION; KURT E. BLASE, PARTNER, HOLLAND & KNIGHT, ON BEHALF OF COARSE PARTICULATE MATTER COALITION; TILL VON WACHTER, ASSOCIATE PROFESSOR OF ECONOMICS, COLUMBIA UNIVERSITY; JOHN WALKE, SENIOR ATTORNEY AND CLEAN AIR DIRECTOR, NATURAL RESOURCES DEFENSE COUNCIL; AND GREGORY WELLENIUS, ASSISTANT PROFESSOR OF EPIDEMIOLOGY, BROWN UNIVERSITY

STATEMENT OF STEVE FOGLESONG

Mr. FOGLESONG. There we go. Thank you for the technological advice. Us ranchers sometimes struggle with that.

Mr. WHITFIELD. Well, everyone forgets.

Mr. FOGLESONG. Oh, OK. I am feeling more comfortable all the time.

Good morning, Chairman Whitfield and Ranking Member Rush and members of the subcommittee. Anybody that knows anything about cattle ranching and feeding knows that many operations are located where wind blows, and that makes dust a part of everyday life. The idea that the EPA may decide to require me and other cattle producers in every part of the country to somehow control that dust gives me cause to lose a lot of sleep at night. The fact is, farmers and ranchers want and need certainty about this issue.

While I and ranchers across the United States are pleased the EPA has decided not to propose to lower the standard this year, we can't be 100 percent sure of that outcome of the rulemaking until it is final. In fact, in 1996 the EPA proposed to remove the PM_{10} 24-hour standard altogether only to bring it back in the final rule, and then again in 2006 the EPA proposed to exempt ag dust. That exemption also disappeared in the final rule. In addition, even if the EPA retains the current dust standard, the opportunity remains for that agency to tighten it in the future. Unless Congress passes the Farm Dust Regulation Prevention Act, that threat remains.

Now, I know that the EPA currently regulates dust. Cattle operations have found it very difficult and expensive to comply. One operation that I know of in Arizona spent $400,000 to comply with that current standard. That is $1,000 a day just to control dust. Most of that is to sprinkle water in those pens, and that is just the current standard. Just think about how much it would cost if the EPA were to actually lower that standard in the future. If that happens, the simple fact is that many farms and ranches may be forced out of business.

Ranchers have been concerned about that possibility for many years but most recently the fear surfaced when EPA revealed it is considering making the dust standard essentially twice as stringent as the current standard. NCBA and the Coarse Particulate Matter Coalition commissioned a study on the impact of the possible new dust regulation on rural America. The study determined that vast areas of the Midwest, Southwest and western parts of the United States would be thrown into the brink of nonattainment if not completely into that nonattainment altogether.

It would be one thing if there were a good reason to regulate farm dust, but there is not. The regulation of dust under the Clean Air Act is supposed to be based on scientific evidence of adverse health effects. Historically, there has been no such evidence of adverse health effects from dust at ambient levels but EPA has decided to regulate it anyway. Why? In 2006, EPA based its decision on the precautionary principle. That is right. EPA's dust regulation is not based on science but on supposition. Let me explain. Particulate matter is separated into two distinct sizes and kinds of matter. Fine PM is combustion-driven material and the size range of 2.5 microns and smaller, known as PM2.5. That is cigarette smoke. Coarse particulate matter, or dust, on the other hand, is bigger particles in the range of 10 microns and smaller down to 2.5 microns. PM_{10} includes both sizes and kinds of particles. The reason I mention particle size and composition is because, incredibly, the EPA is regulating dust using scientific studies that show adverse health effects that may all be caused by combustion-type fine PM, not dust. The studies EPA reviewed are studies looking at the health effects of PM_{10} from urban areas that are contaminated with combustion-type fine PM. Any adverse health effects the studies reveal may well be caused by the fine PM, not the coarse PM.

Use of these studies to identify health effects for purposes of establishing a coarse PM dust standard is inappropriate, especially for rural areas, where urban contaminants are not a concern. Nevertheless, EPA uses a single standard to regulate dust in urban and rural areas. The contaminant issue I mentioned is just one of many problems with the EPA's PM_{10} studies.

I am not a scientist or a medical doctor but I want a confirmation, so we asked Dr. Jonathan Borak, Clinical Professor of Epidemiology and Public Health at Yale University School of Medicine, to review EPA's health studies. Dr. Borak is a highly respected scientist and in fact was one of the founding members of EPA's own Scientific Advisory Committee. He found many problems with the studies on which EPA relies and determined that those studies do not establish risk from a health basis for dust regulation. I have attached his comments to my testimony for the record.

In an effort to bring a little common sense back into this process, cattlemen believe that the best solution is for Congress to pass the Farm Dust Regulation Prevention Act of 2011. Regulatory uncertainty is unnecessary and unproductive. If EPA follows though and does not revise the dust standard, this action would to some degree provide us with certainty but for no more than 5 years. It provides no relief to producers who are spending over $1,000 a day on dust control measures right now. We need immediate, permanent relief from Federal dust regulations on farms and cattlemen believe the best way to achieve that is by passing the Farm Dust Regulation Prevention Act.

Thank you, sir.

[The prepared statement of Mr. Foglesong follows:]

One Page Summary
Testimony of Steve Foglesong
Rancher, Black Gold Ranch, Astoria, Illinois

- Despite EPA's recent claim that it intends to propose retaining the current Coarse Particulate Matter Standard, the Agency could finalize a standard that is very different from the proposed standard. This occurred in both the 1996 and 2006 reviews and therefore, their statement is cold comfort to cattle producers.

- Cattle producers affected by the current PM_{10} standard have incurred individual costs of up to $400,000 in a single year, or more than $1,000 per day. Should EPA lower the standard, much of the Midwest, West and Southwest would move into nonattainment or to the brink of nonattainment, which would put many more cattlemen and women across the country in the position of being forced to bear similar costs or go out of business.

- There is no evidence that rural dust is a health concern at ambient levels, and in fact, renowned scientists have shown great concern over EPA's lack of scientific evidence when reviewing the PM coarse standard.

- EPA is inappropriately regulating dust using scientific studies that show adverse health effects that may all be caused by combustion-type, fine PM, and not actually by dust.

- Cattle producers have been fighting this issue for many years, and hope that this Committee and this Congress can bring permanent relief from this standard by passing H.R. 1633, the Farm Dust Regulation Prevention Act.

Testimony of Steve Foglesong
Rancher, Black Gold Ranch, Astoria, Illinois

Good morning Chairman Whitfield, Ranking Member Rush, and Members of the Subcommittee. Thank you for inviting me to testify this morning. My name is Steve Foglesong, I am a rancher and feedlot operator from Astoria, Illinois and the immediate past President of the National Cattlemen's Beef Association. My family and I run cattle full time on our ranch and cattle feeding operation in Illinois and our grazing operation in Georgia.

Anyone who knows anything about cattle ranching and feeding knows that many operations are located in arid climates where the wind blows and dust gets kicked up and virtually all cattle operations experience dry spells from time to time that make dust a part of every day life. Dust also gets kicked up when ranchers and our neighbors drive their pickups on dirt roads, when we plant and harvest hay and crops, and when we round up cattle for branding or to take them to auction.

The idea that the EPA may decide to require me, and other cattle producers in every part of the country, to somehow control that dust makes me lose sleep at night. It would be ridiculous! The fact is, farmers and ranchers like me want and need certainty about this issue. We need to know that the EPA will not be banging down our door telling us to stop making dust or threatening us with a fine whenever dust gets kicked up. While I, and ranchers across the U.S., are pleased the EPA has decided not to propose to lower the standard this year, we can't be 100% sure of the outcome of the rulemaking until it is final. In fact, in 1996 EPA proposed to remove the PM10 24-hour standard altogether, only to bring it back in the final rule. And in 2006, the EPA proposed to exempt agriculture dust. That exemption also disappeared in the final rule. In addition, even if the EPA retains the current dust standard, the opportunity remains for the agency to tighten it in the future. That reality will remain a threat unless Congress passes the Farm Dust Regulation Prevention Act which would prevent the EPA from regulating farm dust if it is regulated at the state and local levels of government. Passage of this important legislation would give us the certainty we need to do our jobs of providing delicious, nutritious, safe and affordable beef for families to enjoy around the world without having the threat of unreasonable dust regulations hanging over our heads.

Cattle Operations and Dust

Now, I know that the EPA currently regulates dust. The current regulation doesn't affect my ranch, but it does affect other cattle operations. These operations have found it to be very difficult and expensive to comply.

In fact, in 2009, one cattle operation located in a dust nonattainment area in Arizona spent $400,000 to comply with the current standard. $400,000 in one year! That's over $1,000 per day just to reduce dust. Most of the cost is associated with sprinkling water on cattle pens.

And, that is just the current standard; just think about how much it would cost if the EPA were to lower the standard in the future? If that happens, the simple fact is that many farms and ranches may be forced out of business.

Ranchers have been concerned about that possibility for many years, but most recently the fear surfaced when EPA revealed it was considering making the dust standard essentially TWICE as stringent as the current standard during the current consideration of the PM10 NAAQS (National Ambient Air Quality Standards). NCBA and the Coarse Particulate Matter Coalition commissioned a study on the impact of the possible new dust regulation on rural America. The study determined that vast areas of the Midwest, Southwest, and Western parts of the US would be thrown into nonattainment or to the brink of nonattainment where slight changes in the climate could result in a nonattainment designation.

You can see from the map that this area makes up a large portion of our agricultural land in the US. Those of us in agriculture know that dust is a normal part of our lives. Dust *regulation* by the federal government should not be.

Regulatory uncertainty is unnecessary and unproductive. If EPA follows through with its announcement and does not revise the dust standard such a decision would only provide us with certainty for five years, and provides no relief to those producers who are spending over $1,000 per day on dust control measures right now! We need immediate, permanent relief from dust regulation on farms.

I've heard a lot of cussing from cattle producers about EPA regulations, but with dust regulations this swearing is more colorful than usual. The general feeling is that the EPA has lost its way and is out of control.

The Science

It would be one thing if there were a good reason to regulate farm dust, but there is not!

The regulation of dust under the Clean Air Act is supposed to be based on a finding by scientists of adverse health effects. Historically, there has been no evidence of adverse health effects from dust at ambient levels. But, EPA has decided to regulate it anyway. Why? In 2006, EPA based its decision on the precautionary principle. That's right, EPA's dust regulation is not based on science, but on caution. Incredibly, cattle producers are being forced to spend

$400,000 a year to control dust as a precautionary measure, not because there is any real problem.

Let me explain. Particulate Matter (PM) is separated into two distinct sizes and kinds of matter. Fine PM is combustion-derived material in the size range of 2.5 microns and smaller, known as PM2.5. It's like cigarette smoke, for example. We know that causes a problem. Coarse PM or dust, on the other hand, is bigger particles in the size range of 10 microns and smaller down to 2.5 microns, the size of fine PM. PM10 includes both sizes and kinds of particles.

The reason I mention particle size and composition is because, incredibly, the EPA is regulating dust using scientific studies that show adverse health effects that may all be caused by combustion-type, fine PM - not by dust.

The studies EPA reviewed are studies looking at the health effects of PM10 from URBAN areas that are contaminated with combustion-type, fine PM. Any adverse health effects that the studies reveal may well be caused by the fine PM part, not the coarse PM part. Use of these studies to identify health effects for purposes of establishing a coarse PM "dust" standard is inappropriate, especially for rural areas where urban contaminants are not a concern. The few studies that have attempted to take into account the contamination of dust by co-pollutants have shown that the adverse effects of the isolated dust particle are statistically non-significant. Nevertheless, the EPA uses a single standard to regulate dust in urban and rural areas. This is particularly inappropriate in rural areas, where urban contaminants are not a concern.

The contaminant issue I mention is just one of many problems with EPA's PM10 studies.

Now, I am not a scientist or a medical doctor, but the reason I know all this is because NCBA asked Dr. Jonathan Borak, Clinical Professor of Epidemiology & Public Health at Yale University's School of Medicine, to review EPA's health studies during the current and last reviews. Dr. Borak is a highly respected scientist and, in fact, was a founding member of one of EPA's scientific advisory committees. He found many problems with the studies on which EPA relies and determined that they do not establish a basis for dust regulation. I have attached his comments to my testimony for the record.

EPA Staff Assessment of Policy Options

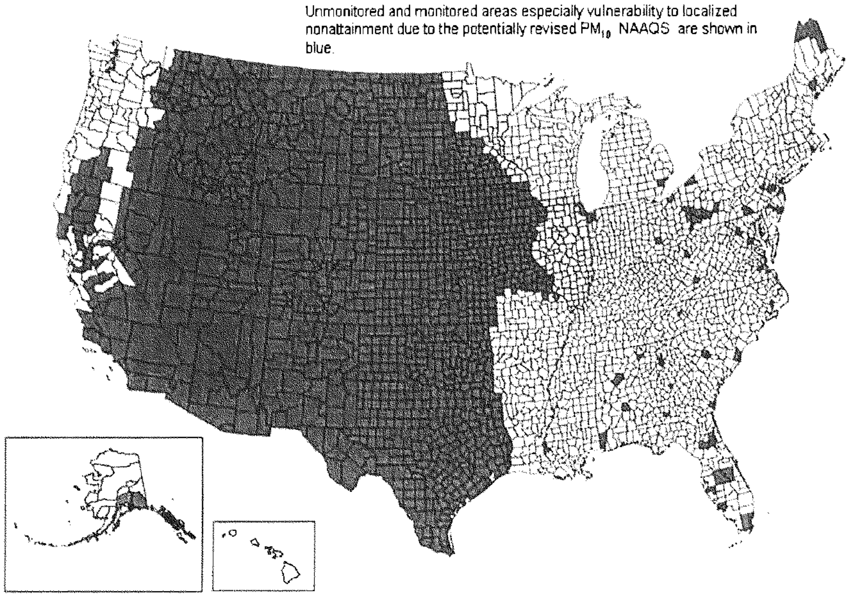
During the current consideration of the regulation of dust, EPA's staff has determined that, depending on the weight given the substantial uncertainties regarding adverse health effects, the Administrator could justify either retaining the current PM10 standard or revising it to a level that is essentially twice as stringent.

Now, while it would be very good news if the EPA were to finalize a rule that retains the current dust standard, the fact that EPA has considered lowering the standard when the scientific basis is so uncertain is troubling. NCBA is very concerned about the fact that in a few years the EPA may choose to lower the standard and cause great financial harm to our farmers, ranchers and rural communities across America.

The Solution

In an effort to bring a little common sense back into the process, cattlemen believe the best solution is for Congress to pass Representative Kristi Noem's bill, H.R. 1633, the "Farm Dust Regulation Prevention Act of 2011," that would first place a one year moratorium on revising the dust standard, and would prevent the EPA from regulating rural dust where state and local authorities have implemented nuisance dust control measures. If state and local authorities don't control rural dust, the EPA could regulate it only if it made a finding of (1) substantial adverse health effects, and (2) the benefits of regulation outweigh the cost to the regional and local economies.

This is common sense legislation that cattlemen and women strongly support and urge Congress to pass. We thank Representative Noem and the other sponsors of this legislation for their leadership on this important issue. And, we thank you, Mr. Chairman, and your subcommittee for considering NCBA's testimony on an issue that is critical to cattlemen across the country, and the economic well-being of Rural America.


Unmonitored and monitored areas especially vulnerability to localized nonattainment due to the potentially revised PM_{10} NAAQS are shown in blue.

Areas especially vulnerable to county-wide or localized nonattainment due to the potentially revised NAAQS

JONATHAN BORAK & COMPANY, INC.
Specialists in Occupational & Environmental Health

May 4, 2005

Rogene Henderson, Ph.D.
Chair, Clean Air Scientific Advisory Committee
Lovelace Respiratory Research Institute
2425 Ridgecrest Drive, SE
Albuquerque, NM 87108

Dear Dr. Henderson:

I am writing at the request of the National Cattlemen's Beef Association ("NCBA") in order to share my concerns regarding the scientific basis for the proposed NAAQS for coarse particulate matter ($PM_{10-2.5}$) that is currently under CASAC review. To more properly introduce myself, I have attached a short summary of my experience and qualifications in medicine, epidemiology, toxicology and occupational health science. I currently teach at Yale University.

In reviewing the Criteria Document and the OAQPS Staff Paper (2nd draft), I was struck by the general lack of support for a coarse particulate matter standard. The Staff Paper, for example, acknowledges that there is at best a "limited body of evidence" on the health effects of coarse particulate matter:

> "a growing but still limited body of evidence on health effects associated with thoracic coarse particles from studies that directly use an indicator of $PM_{10-2.5}$." (Staff Paper: 5-58) (emphasis added)

The Staff Paper points to four studies as the principal sources of data linking coarse particulate and morbidity:

> "Three such studies conducted in Toronto (1), Seattle (2,3), and Detroit (4,5) report statistically significant associations between short-term $PM_{10-2.5}$ exposure and respiratory- and cardiac-related hospital admissions, and a fourth study conducted in six U.S. cities (5) reports statistically significant associations with respiratory symptoms in children." (Staff Paper: 5-59)

Exhibit I

My concerns about the use of those four studies to justify a $PM_{10-2.5}$ standard are presented below.

My initial concern is that each of these studies was conducted in a location where fine particulate matter ($PM_{2.5}$), rather than coarse particulate matter ($PM_{10-2.5}$) was the predominant form of ambient particulate matter. There should be significant concern about confounding of coarse by fine particulate matter: the well-recognized adverse effects of $PM_{2.5}$ might be wrongly attributed to $PM_{10-2.5}$. Such concern was acknowledged in the Staff Paper:

> "The extent to which the results from these studies are robust to the inclusion of co-pollutants varies depending on the various models used and the number of co-pollutants included in the models. Staff notes that these studies were done in areas in which $PM_{2.5}$, rather than $PM_{10-2.5}$, is the predominant fraction of ambient PM, such that they are not representative of areas with relatively high levels of thoracic coarse particles." (Staff Paper: 5-59) (emphasis added)

Of greater concern is that these four studies contain little if any evidence that $PM_{10-2.5}$ is actually associated with the monitored health effects. The Staff Paper argues that the four studies "in general" do provide such evidence, but particular importance is given to the Detroit study, which Staff judged "strongest of these studies":

> "...staff nonetheless believes that these studies in general, and the Detroit study in particular, do provide evidence of associations between short-term exposures to $PM_{10-2.5}$ and hospital admissions... the Detroit study, which staff judges to be the strongest of these studies, likely reflects exposure levels potentially much higher in the central city area than those reported in that study." Staff Paper: 5-68 (emphasis added)

But review of these reports and their related documentation finds little support for such statements.

The Detroit Study

1) The Detroit study (4,5), which the Staff Paper described as "the strongest", was published by HEI along with a Commentary prepared by the HEI Health Review Committee and an HEI-prepared Synopsis (4). The Commentary and Synopsis disagree with Staff conclusions about the study:

> "...the data do not clearly support a greater effect of one pollutant over another, nor do they establish which pollutants are most likely to cause adverse health effects..." HEI Synopsis

At best, HEI found that the Detroit data provided a rationale to not exclude the possibility that PM_{10} might have an adverse effect ("there may still be a rationale..."), but that finding differs substantially from the Staff Paper conclusion that the Detroit study provided strong "evidence of associations".

> "The finding of elevated and significant effects for $PM_{10-2.5}$ suggests that there may still be a rationale to consider the health effect of the coarse fractions as well as the fine fraction of PM." HEI Synopsis (emphasis added)

Moreover, a 2003 follow-up by Ito, one of the original study authors, re-analyzed the Detroit data by means of different statistical models and affirmed that the study revealed only a lack of specific findings for coarse particulate matter:

> "The conclusions of the original study regarding the lack of relative role of PM by size and chemical characteristics remain the same." (5):152 (emphasis added)

2) In addition to their cautious interpretation of the data, the HEI Health Review Committee raised concerns because the Detroit study analyses were based on comparison of "best lag results", where "best lags" were determined *post hoc* and defined to be those associated with the largest relative risks.

> "The authors' finding of stronger effect for one metric over another was based on a comparison of best lag results. The lag identified as best was chosen after the fact and based on the size of the estimated relative risk." (HEI Commentary: 80).

This statistical approach presents interpretive dilemmas. By selecting lags after the fact and specifically choosing those which yielded largest estimated relative risk, the analyses were inherently biased; i.e., the 'correct' analyses were those that yielded the most significant (positive) effects. Such bias favors the finding of positive associations and disfavors the possibility that significant associations do not exist.

But despite such inherent bias, the observed effects were small. As stressed by the HEI Health Review Committee:

> "Despite using the best lag, most point estimates were similar, and the confidence bands overlapped." (HEI Commentary: 80).

Such findings do not suggest that true effects (if true effects exist) were strong; to the contrary, they raise concerns that the observed effects were due to bias, not to biology and nature. That possibility was specifically addressed by Ito in the 2003 follow-up study, who recognized that the potential magnitude of such biasing:

> "... factors that can change pollution RR estimates ... include the location of monitors, choice of lags, and considerations of distributed lags. These factors can cause differences that vary by up to a factor of two in estimated pollution coefficients." (5): 152

3) The Detroit study was also handicapped because particulate matter data were obtained from ambient monitors in Windsor, Ontario. This poses interpretive difficulties because coarse particulate (e.g., $PM_{10-2.5}$) is expected to deposit more rapidly and more locally than fine particulate. Accordingly, coarse particulate levels in Windsor (several miles from central Detroit) would not necessarily reflect those in Detroit. It is generally accepted that local sources are of particular importance in determining concentrations of coarse particulate (6).

As discussed in the Staff Paper, the study authors indicate that levels measured at the Windsor monitors generally correlated with those from Detroit. However, Staff concluded that $PM_{10-2.5}$ levels were probably much higher in Detroit than in Windsor:

> "in recent years, based on available Windsor and Detroit data from 1999 to 2003, the Windsor monitors used in this study typically have recorded $PM_{10-2.5}$ levels that are generally less than half the levels recorded at urban-center Detroit monitors..." (Staff Paper: 5-68)

Accordingly, the Staff Paper concluded that $PM_{10-2.5}$ exposures in Detroit "may be appreciably higher than what would be estimated using data from the Windsor monitors".

The Criteria Document also addressed concerns about such a lack of spatial uniformity:

> "The degree of spatial uniformity in $PM_{2.5}$ concentrations in urban areas varies across the country. These factors should be considered in using

> data obtained by the $PM_{2.5}$ FRM network to estimate community-scale human exposure, and caution should be exercised in extrapolating conclusions obtained in one urban area to another." (Criteria Document: 3-101) (emphasis added)

The Staff Paper is even more explicit about such concerns:

> "Daily mean $PM_{10-2.5}$ concentrations tend to be more variable and have lower inter-site correlations than $PM_{2.5}$, possibly due to their shorter atmospheric lifetime (travel distances < 1 to 10s of km) and the more sporadic nature of $PM_{10-2.5}$ sources." (Staff Paper: 2-69) (emphasis added)

Thus, assumptions that Windsor PM $_{10-2.5}$ data fairly represent Detroit exposures are at best problematical.

4) The Detroit analytical model incorporated assumptions about correlations between simultaneous measures of coarse particulate and gaseous pollutants. The apparent assumption was that these pollutants had relatively consistent and homogeneous spatial uniformity but, as discussed in the Toronto study (1) (see below), that assumption is not valid. Because there was probably low correlation between $PM_{10-2.5}$ levels measured in Windsor and gaseous pollutant levels measured in Wayne County, the Detroit analyses suffered additional uncertainty.

5) Finally, it is notable that the Detroit analyses considered only one- and two-pollutant models. Notwithstanding the analytical difficulty of more complex analyses, the use of only incomplete models is an important concern. As discussed below, inclusion of multiple gaseous pollutants in the Toronto study (1) analyses eliminated all associations with coarse particulate; it is reasonable to expect that such multi-pollutant analyses would have had similar effects here. Thus, one must be cautious in interpreting the weak associations determined in one- and two-pollutant models as used for Detroit. The HEI Health Research Committee voiced similar concerns:

> "In order to determine the relative effects of several risk factors on a health outcome, ideally all variables under considerations would be included in a single model." (HEI Synopsis: 80)

The Toronto Study

1) The Toronto study (1), published in 1997, did not find statistically significant associations between monitored cardiac and respiratory effects and coarse particulate matter:

> "Particle mass and chemistry could not be identified as an independent risk factor for the exacerbation of cardiorespiratory diseases in this study beyond that attributable to climate and gaseous air pollution." (1)

It is curious that Staff would have cited this study as providing "statistically significant associations between short-term $PM_{10-2.5}$ exposure and respiratory- and cardiac-related hospital admissions" [Staff Paper: 5-59]. To the contrary, this study found no such associations for coarse particulate.

2) In addition, this study provides reasons to doubt the conclusions of the Detroit study. The Toronto study obtained particulate matter data from a monitoring site in downtown Toronto, while gaseous pollutants and COH were measured at several locations including that downtown site. The Toronto researchers noted that spatial correlation was relatively high for fine particulate, but significantly lower for coarse particulate:

> "fine mass and sulfate measurements collected at this site have been shown to be highly correlated ($r > 0.8$) with concentrations over a wide area ... Similar evidence, indicating that a single centrally located site measuring fine particulate matter and sulfates is a reasonable predictor of the average of personal exposures among populations living in urban environments, has been reported for other cities... As expected, the degree of spatial correlation is smallest for coarse particles (*r* ranges from 0.44 to 0.53)." (1) (emphasis added)

Such relatively poor spatial correlations for coarse particulate underscore the concerns discussed above regarding the use of Windsor $PM_{10-2.5}$ data as a proxy for exposures in Detroit. As spatial correlations for $PM_{10-2.5}$ fall with distance, the uncertainty of analyses based on distant $PM_{10-2.5}$ measures must necessarily increase. Thus the Toronto data make us cautious in interpreting the Detroit findings.

3) The Toronto study differed importantly from the Detroit study in its use of multiple-pollutant models. As increasing numbers of pollutants were included, the effects that might otherwise have been attributed to coarse particulate were eliminated:

> "Even though we could observe statistically significant positive associations for these [fine and coarse] particle measures with health outcomes after controlling for climatic factors, the apparent association disappeared after adjustment for O_3, NO_2, and SO_2." (1) (emphasis added)

Moreover (and not surprisingly), the choice of co-pollutants included in the analysis was important for dealing with the confounding effects of mixed exposures. This pertains to $PM_{10-2.5}$, but was specifically illustrated with respect to PM_{10}:

> "It is recommended that all available air pollution measures be considered in assessing the effects of any single pollutant on health. In our case, for example, TP [PM_{10}] remained a positive and statistically significant predictor for respiratory hospitalizations after adjusting for either O_3, SO_2, or CO separately, an analysis strategy used by many investigators. However, the TP association could be completely explained by NO_2, a risk factor not as widely considered in North American locales as the other criteria pollutants." (1) (emphasis added)

As noted above, similar concerns about one- and two-pollutant models were voiced by the HEI Health Research Committee:

> "In order to determine the relative effects of several risk factors on a health outcome, ideally all variables under considerations would be included in a single model." HEI Synopsis: 80

4) In summary, beyond the important fact that the Toronto study did not find evidence that coarse particulate matter was associated with monitored health effects, the Toronto report presented several methodological bases for questioning the Detroit conclusions. Contrary to descriptions contained in the Staff Paper, this study provided evidence against the adoption of a coarse particulate matter standard.

The Seattle Study

1) The most striking feature of the Seattle study (2,3) is its paucity of empirical data: "Numerous missing PM measurements (see Table 1) potentially limit our analysis" (2). That table, which documents the remarkable extent of missing data, is summarized in a table on the next page.

As can be seen, there were hardly any data for fine particulate matter and there were necessarily still fewer data for coarse particulate, which was calculated as PM_{10} - $PM_{2.5}$.

Percentage of Missing Particulate Data				
Site	1st PM Monitoring Year	Light Scatter	$PM_{2.5}$	PM_{10}
#1	1986	1	72	4
#2	1989	9	81	31
#3	1989	33	100	40

Thus, the Seattle study is largely a theoretical exercise based on imputed data:

> "Our final analyses (and all PM and SO_2 results reported herein) were based on combining the estimates from the six imputed datasets." (2)

2) The Seattle study does not describe specific models used to impute missing data, instead citing only generic discussions. Further, the authors indicate that "six multiple imputation datasets" were created, but the differences among them were not described. In addition, analyses were performed on the "average" values derived from those six datasets, not on each of the individual datasets:

> "For exploratory analyses and model development, we used the average of the six multiple imputation datasets as our exposure data." (2)

No explanation or justification is provided for using an average of the theoretical datasets, rather than considering each dataset separately. The latter approach would have provided insight into the variability among imputation models, while the use of averaging concealed such variability. Averaging also compressed the data, reducing the significance of excursion events while accentuating the significance of mean exposures. Such an approach might be justified if the critical variable was cumulative exposure, but would likely distort results related to peak effects. The significance of such distortions was not considered in the study or in the Staff Paper.

3) Although the report presented only those effects that were statistically most significant, the magnitudes of the reported effects were small. In a follow-up study, Sheppard (3) expressed concern that in light of such small observed effects, bias due to "model selection" and other "computational details" might have resulted in overly "optimistic" study findings:

> "Results of this analysis may be optimistic due to a model selection bias because the most statistically significant effects among three (and up to seven) models were reported for each pollutant." (3)

It is interesting to note the underlying bias revealed by that comment. The Seattle researchers were apparently so inclined to find that coarse particulate matter was significantly harmful that out of 'optimism' they may have wrongly linked coarse particulate matter with disease. At an individual researcher level, such 'optimism bias' might be the equivalent of the more familiar 'publication bias'. (I am not immune to incentives to 'discover and publish', but I would more likely feel 'optimistic' by findings that common, naturally occurring and not readily avoidable exposures were not adverse).

The possibility of such researcher bias causes particular concern given the subjective nature of the Seattle study data (i.e., multiple imputed datasets created by methods not specifically described) and the fact that results were selectively reported for only the most significant effects.

The Six Cities Study

1) This reanalysis of the data from three longitudinal studies found little association between coarse particulate and monitored health effects (7). The Staff Paper describes the report as documenting "statistically significant associations with respiratory symptoms in children" (Staff Paper: 5-59), but that conclusion is misleading. The study actually found that, with one exception, coarse particulates were not associated with respiratory symptoms:

> "For lower respiratory symptoms, the association was stronger for all of the fine-particle measures than for CM [$PM_{10-2.5}$] in single-pollutant regressions. A model including both CM and $PM_{2.5}$ resulted in a substantial reduction in the effect of CM, with little evidence that the remaining effect was different from zero." (7)

2) The only apparent association between coarse particulate and monitored health effects involved cough:

> "Cough in the absence of any other symptoms was the only response in which coarse particles appeared to contribute to an adverse health effect... This coarse particle effect may be due to particle deposition and irritation in the upper airways." (7)

The importance of this finding of probably minimal clinical significance is unclear. It is certainly less important than the effects associated in this study with fine particulate matter exposure:

> "In summary, toxicologic and epidemiologic studies indicate that ambient toxic particles are primarily in the fine-particle fraction..." (7)

Summary

My review of these four studies finds a general lack of scientific support for a proposed NAAQS for $PM_{10-2.5}$.

Moreover, I find little justification for the Staff Paper statements that these four studies provide, either in general, or in particular, adequate scientific evidence requisite or necessary to support the adoption of a coarse PM standard.

Yours truly,

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August 10, 2005

Rogene Henderson, Ph.D.
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Dear Dr. Henderson:

I am writing at the request of the National Cattlemen's Beef Association ("NCBA") in order to express my concerns regarding the scientific basis for the proposed NAAQS for coarse particulate matter ($PM_{10-2.5}$) that is currently under CASAC review. In an earlier letter (dated May 4, 2005), I shared related concerns about the OAQPS Staff Paper (2nd draft) that was then under CASAC review.

Since May, CASAC published its *Review of the National Ambient Air Quality Standards for Particulate Matter (Second Draft PM Staff Paper, January 2005)* and thereafter EPA published a final *PM Staff Paper* ("SP") (EPA-452/R-05-005, June 2005). As a result, the coarse particulate focus has shifted, with attention now directed to the regulation of "urban coarse particles" as distinguished from "non-urban" and "rural coarse particles".

This standard-setting process has continued despite repeated acknowledgement by EPA staff that there is at best a "limited body of evidence" to support a coarse particulate standard. There is inadequate evidence documenting adverse health effects of coarse particulate:

> "a growing, but still limited, body of evidence on health effects associated with thoracic coarse particles from studies that use $PM_{10-2.5}$ as a measure of thoracic coarse particles." (SP: 5-47) (emphasis added)

Likewise, there are significant limitations to the epidemiologic support for such a standard:

Exhibit J

> "staff recognizes that the substantial uncertainties associated with the limited available epidemiologic evidence present inherent difficulties in interpreting the evidence for setting appropriate standards..." (SP: 5-52) (emphasis added)
>
> "The available epidemiologic evidence for effects of $PM_{10-2.5}$ exposure is quite limited and is inherently characterized by large uncertainties, reflective in part of the more heterogeneous nature of the spatial distribution and chemical composition of thoracic coarse particles and the more limited and uncertain measurement methods that have generally been used to characterize their ambient concentrations." (SP: 5-53) (emphasis added)

But even these cautionary notes and caveats are insufficient. As discussed below, the studies cited in the SP contain fewer relevant data and a less compelling "body of evidence" about coarse particulate than is claimed in the SP. In the following discussion, I particularly address statements made in section 5.4 of the SP.

Toxicologic evidence

The evidence presented in the SP begins with consideration of "limited toxicologic studies" that evaluated adverse effects of urban road dust. Two specific studies are cited, Kleinman et al (1) and Steerenberg et al (2). In addition, the SP notes that the CD presented "some very limited *in vitro* toxicologic studies" suggesting that coarse particulate "may elicit pro-inflammatory effects."

Kleinman study (1)

1) In this study, SD rats were exposed to resuspended "road dust" particles of undetermined composition with an MMAD of 4 μm: "only 4 μm MMAD particles were tested" (1). Neither the particle size distribution nor the proportions of particles <2.5 μm and >2.5 μm was reported. Accordingly, it is not possible to know whether observed effects were due to fine particulate, coarse particulate, or both. The probable confounding of the coarse fraction by fine road dust particles was noted by the authors:

> "there are small but significant contributions of crustal elements from road dust to the submicrometer particle faction of PM_{10}" (1).

Because this study could not differentiate the putative effects of $PM_{10-2.5}$ from those of $PM_{2.5}$, it is difficult to see its direct relevance to setting a $PM_{10-2.5}$ standard.

2) Additional animals were exposed to submicrometer particles of ammonium sulfate or ammonium nitrate. Sulfate and nitrate were more consistent and more potent in their effects than was road dust:

> The "most consistent effects were observed in rats exposed to ...sulfate and nitrate"; their relative potency was "SO_4^{-2} > NO_3^- > road dust". (1)

Thus, the authors concluded that the effects observed in the study were mainly due to submicrometer PM_{10} components:

> "This study also supports the hypothesis that the fine fraction of PM10 is more toxic than the coarse fraction." (1).

Because the findings attributed to resuspended road dust were relatively weak and inconsistent, it is difficult to see the direct relevance of this study to setting a $PM_{10-2.5}$ standard.

Steerenberg study (2)

1) These authors evaluated the adjuvant activities of five "ambient" particulates (two samples of diesel exhaust, a residual oil fly ash, and two actual ambient dusts) in two allergenicity models (ovalbumin in BALB/c mice and grass pollen in BN rats. Neither of the actual ambient dusts represented $PM_{10-2.5}$. The first (Ottawa dust, EHC-93) had been previously characterized (3); the count median diameter was 0.5-0.6 μm and the MMAD was 3-4 μm. The second (road tunnel dust) was collected by a device that can classify particulate into three size classes: <0.1 μm, 0.1-2.5 μm and 2.5-10 μm (4), but there is no indication that the administered dust was other than $<PM_{10}$.

We can reasonably expect that diesel and fly ash samples consisted of mainly submicrometer particles. In addition, a substantial proportion of at least one of the ambient dust particles was <2.5 μm and there is no indication that the second ambient dust did not contain a substantial number of particles <2.5 μm. Thus, it is not possible to attribute observed effects to $PM_{10-2.5}$. Because the study did not differentiate between fine and coarse particulate, it is difficult to see the direct relevance of this study to setting a $PM_{10-2.5}$ standard.

2) All five particle types demonstrated adjuvant activity in the ovalbumin model, but only one (a sample of diesel exhaust) had such activity in the pollen model. The authors raise various concerns about the relevance of the ovalbumin model:

> "ovalbumin might not be the most relevant antigen for respiratory allergy in humans to study the effects of air pollution in an animal model ... more realistic antigens for studying the association between air pollution and allergy are pollen grains or house dust mite antigens." (2)

Because the findings attributed to ambient (i.e., road) dust were seen only in the model deemed less "relevant" and less "realistic", it seems inappropriate that staff so strongly embraced this study as directly relevant to setting a $PM_{10-2.5}$ standard.

Epidemiologic evidence

The SP describes three groups of epidemiologic studies. The first group focused mainly on the associations between PM exposure and morbidity. I expressed my concerns about those studies in my letter of May 4, 2005 and my concerns persist unchanged.

The two other groups included studies that considered "mortality associations ... reported ... in areas with relatively high $PM_{10-2.5}$" and studies that considered various outcomes (e.g., hospitalizations, medical visits, mortality) "in areas where PM_{10} is typically dominated by coarse fraction particles". In the following discussion I present my concerns about those cited studies.

Mortality Studies in Areas with Relatively High $PM_{10-2.5}$

The SP cites three studies (six reports) in support of their statement that statistically significant mortality associations were reported in areas with "relatively high $PM_{10-2.5}$ concentrations". I note that the SP does not define or explain the term "relatively high ... concentrations."

Phoenix study

1) The Phoenix study, published originally in 1997 (5) and after statistical reanalysis in 2000 (6), found "marginally significant ($p<0.10$)" associations between $PM_{10-2.5}$ (referred to as PM_{CF}) and total mortality, but there was no significant association between total mortality and $PM_{2.5}$. PM measures were statistically associated with cardiovascular mortality, but that association was

weakest for $PM_{10-2.5}$. In the statistical reanalysis, the strength of marginally significant associations was reduced.

A great number of statistical analyses were performed on a large number of variables under a variety of lag conditions. The scope of these analyses (but not their actual number) is indicated by the authors in the following statement:

> "Summaries of the RR between the exposure variables and both total and cardiovascular mortality are presented in Table 6 and 7, respectively. Because of space limitations, we only present statistically significant ($p<0.05$) and marginally significant ($p<0.10$) results in the tables, although models were run using all of the pollutants listed in Table 5. We evaluated the associations ... using single-pollutant models." (5)

Because Table 5 lists 17 pollutants and because there were at least 5 lag conditions and two mortality categories, I infer that at least 170 analyses were performed. The authors describe no adjustments and express no concerns about the statistical complexity caused by such multiple comparisons (7).

In such a context, even when authors can justify not adjusting for multiple comparisons, it is difficult to support the assumption that "marginal" and "weak" associations (i.e., $p<0.10$) have much statistical meaning. Such concerns are heightened when "marginal" findings are internally inconsistent (i.e., sporadic findings within a data set) and externally inconsistent (i.e., not supported by most other studies and therefore unexpected). This is the case for the Phoenix coarse particulate data.

2) The lack of significant association between $PM_{2.5}$ and total mortality is surprising and difficult to reconcile with the robust associations documented in most studies (and described in the CD). That finding does not seem adequately explained by merely observing that Phoenix $PM_{2.5}$ represented only a minority of total PM_{10}. In other cities where $PM_{10-2.5} > PM_{2.5}$ (e.g., Topeka in the Harvard Six Cities study (8)), the expected positive association between $PM_{2.5}$ and mortality was observed.

Thus, the lack of an association between $PM_{2.5}$ and total mortality in Phoenix raises concerns about the integrity of the database and whether it is appropriate as the basis for generalization.

3) A negative association was found between soil and total mortality, although soil was well correlated with $PM_{10-2.5}$ ($r=0.66$). Similar findings derive from the Factor Analysis, which reported a significant negative association between "fine

soil" and total mortality; there was no significant association between "fine soil" and cardiovascular mortality.

While it is unlikely that exposure to crustal particulate is protective, these findings support the results of other studies (e.g., (9)) that found few or no adverse health effects attributable to coarse crustal particulate.

4) It is unfortunate that this study used only single-pollutant models:

> "We evaluated the associations between total and cardiovascular mortality and the gaseous pollutants, PM mass metrics, and PM composition metrics using single-pollutant models." (5)

In my earlier letter, I discussed (with respect to the Toronto (10) and Detroit (11) studies) the limitations that stem from use of such models. Based on their study, which found that apparent associations with particulates disappeared after adjustment for co-pollutants, Burnett and colleagues recommended that:

> "all available air pollution measures be considered in assessing the effects of any single pollutant on health". (10)

Likewise, the HEI Health Research Committee echoed that recommendation in its comments on the Detroit study:

> "In order to determine the relative effects of several risk factors on a health outcome, ideally all variables under considerations would be included in a single model." HEI Synopsis: 80 in (11)

The use of single-pollutant models limits the meaningfulness of the conclusions drawn from the Phoenix study.

Coachella

1) The SP cites three reports by Ostro and colleagues that evaluated mortality in the Coachella Valley (12-14). The first report considered only PM_{10}, while the subsequent reports considered PM_{10}, $PM_{2.5}$ and $PM_{10-2.5}$. PM_{10} data were available for a 10-year period, but $PM_{2.5}$ data were available for only 2.5 years. Accordingly, the missing $PM_{2.5}$ and $PM_{10-2.5}$ were "estimated" using a predictive function that estimated $PM_{10-2.5}$ as a cubic function of PM_{10}.

Since $PM_{10-2.5}$ was estimated from PM_{10} by means of a formula fitted to the existing data by ordinary least squares, it is not surprising that a high correlation was found between PM_{10} and $PM_{10-2.5}$. But there was such poor fit for $PM_{2.5}$ data that the authors concluded that "predictive models could not be successfully estimated" (14).

It is disturbing that this study relied on estimated data that could not fit the expected simple relationship: $PM_{10-2.5} = PM_{10} - PM_{2.5}$. I presume that this reflects a decision to derive a best fit equation for only the relationship between $PM_{10-2.5}$ and PM_{10}, rather than finding the best fit to simultaneously predict both $PM_{10-2.5}$ and $PM_{2.5}$. Regardless of the correlation reported, it is difficult to accept that the predictive equation truthfully reflects the nature of PM in the Coachella Valley.

In turn, inferences drawn from these estimated data should be viewed with skepticism.

2) The above concerns about the estimated coarse particulate data also raise concerns about the precision of the Coachella Valley effects data and their appropriateness for quantitative risk assessment. The SP established a criterion ("rough indicator of ... precision") for deciding whether studies effects data were sufficiently precise to be used in quantitative estimates of exposure-response relationships:

> "The natural logarithm of the mortality-days (a product of each city's daily mortality rate and the number of days for which PM data were available) can be used as a rough indicator of the degree of precision of effect estimates ... staff chose to consider only those urban areas in which studies with relatively greater precision were conducted, specifically including studies that have a natural log of mortality-days greater than or equal to 9.0 (i.e., approximately 8,000 deaths) for total non-accidental mortality." (SP, p. 4-6)

Because the Coachella study contained only 2.5 years of $PM_{2.5}$ data and deaths averaged 5.8 per day, the SP excluded this study from quantitative analyses.

Likewise, because there were only 2.5 years of 'real' data for coarse particulate (i.e., measures of $PM_{10-2.5}$ determined literally as the difference between PM_{10} and $PM_{2.5}$), there were too few mortality-days to use the Coachella study for quantitative assessment of exposure-response relationships for coarse particulate.

Six Cities Study

1) The SP cites Steubenville, one of the cities included in the Harvard Six Cities study, as supporting the view that statistically significant mortality associations were reported in areas with "relatively high $PM_{10-2.5}$ concentrations". The study data were originally published in 1996 (8); a statistical reanalysis was published in 2003 (15). The staff view differs from the conclusions of the study authors:

> "The particle associations were specifically with fine particle mass concentrations, with little additional contributions from the coarse particle mass fraction... For the coarse particle mass fraction, the combined effect estimate was weaker, not statistically significant, and inconsistent in the city-specific associations."

2) It is curious that staff put such emphasis on Steubenville, because in the context of estimating exposure-response relationships for $PM_{2.5}$, the SP had earlier discounted the Steubenville data as imprecise:

> "The natural logarithm of the mortality-days (a product of each city's daily mortality rate and the number of days for which PM data were available) can be used as a rough indicator of the degree of precision of effect estimates ... staff chose to consider only those urban areas in which studies with relatively greater precision were conducted, specifically including studies that have a natural log of mortality-days greater than or equal to 9.0 (i.e., approximately 8,000 deaths) for total non-accidental mortality." (SP, p. 4-6)

On the basis of this criterion, Steubenville was excluded from the quantitative analysis.

3) Besides possible imprecision, it is likely that the Steubenville $PM_{10-2.5}$ data were confounded by $PM_{2.5}$.

In five of the six study cities (but not Steubenville), correlations between $PM_{2.5}$ and $PM_{10-2.5}$ were relatively low (0.23-0.45). In Steubenville, however, the correlation was "quite high (0.7)" (8). Furthermore, in ancillary analyses, it was shown that the estimated association with $PM_{10-2.5}$ was explained by $PM_{2.5}$ and that the estimated effect of a given increase in $PM_{10-2.5}$ increased "proportionately with the correlation between $PM_{10-2.5}$ and $PM_{2.5}$" (8).

Thus it seems very likely that the apparent association of mortality and coarse particulate in Steubenville was due to unresolved confounding.

4) It is also noteworthy that in one of the six cities (Topeka) there was a negative association between mortality and $PM_{10-2.5}$ (but not $PM_{2.5}$). Topeka was also the only city for which $PM_{10-2.5}$ levels > $PM_{2.5}$ levels. These findings suggest that in Topeka, a city "subject to windblown dust", coarse particulate was predominantly crustal and therefore associated with a negative exposure-effect relationship. This observation was noted above with reference to the negative mortality association between mortality and soil seen in Phoenix.

Outcomes in Areas where PM_{10} is Dominated by Coarse Particles

The SP cites four studies (five reports) in support of their statement that statistically significant associations were reported for various other health outcomes "in areas where PM_{10} is dominated by coarse particles". I note that the SP does not define or explain the term "dominated by coarse particles."

Tucson study

1) The SP cites a 1997 study of cardiovascular hospitalizations (16) as evidence of adverse health outcomes "in areas where PM_{10} is dominated by coarse particles". However, the study contains no data on ambient levels of $PM_{2.5}$:

> "Unfortunately, no $PM_{2.5}$ data are available in Tucson..." (16).

2) The author notes that in western cities such as Tucson, $PM_{2.5}$ represents a smaller proportion of PM_{10} than in northeast cities:

> "in general, $PM_{2.5}$ is about 50% of PM_{10} in such western locations, vs. about 62% in the northeast." (16)

But in this study the proportion of $PM_{2.5}$ was probably greater than that otherwise expected because the source of PM data was a monitoring station, Garden Grove, that had been selected in part because it was less likely to measure wind blown crustal dust:

> "Several monitoring stations were available in Tucson... most of them were more subject to windblown dust than the Garden Grove station." (17)

3) In addition, the Garden Grove station was "located in a neighborhood site likely to be representative of population exposure" (17). From that, I infer that the station was located in a residential area where PM from domestic and vehicular sources was more likely and crustal coarse PM, as might be associated with arid western dust, less likely. The statement quoted above implies that such exposures are more representative of the sorts of "population exposures" that might be associated with the adverse health outcomes evaluated in the study.

Accordingly, I am cautious to accept the SP conclusion that this study represents an area "where PM_{10} is dominated by coarse particles."

Reno/Sparks study

1) The SP cites a study of hospital admissions for COPD in Reno/Sparks, Nevada (18). But there is no evidence in the study that PM_{10} was "dominated" by $PM_{10-2.5}$. To the contrary, the report contains the following relevant observations:

> a) During the time span of this study, data for $PM_{2.5}$ were not available in this area. Thus, one cannot determine objectively that PM_{10} was "dominated by coarse particles".
>
> b) Higher PM_{10} peaks occurred during the winter season, an observation that the authors propose to be the result of "increased residential combustion due to cold weather in the study area" (18).
>
> c) A negative correlation was found between wind speed and levels of PM_{10}, which suggests that wind blown dust crustal dust was not an important determinant of coarse particulate levels.
>
> d) Levels of PM_{10} were highest on weekdays and lowest on weekends. The authors attribute this difference to reduced weekend vehicular traffic, but they did not differentiate the relative contributions of reentrained road dust vs. vehicular exhaust.

There is apparently no objective evidence in this study that PM_{10} was "dominated" by $PM_{10-2.5}$. Accordingly, it is difficult to see the direct relevance of this study to setting a $PM_{10-2.5}$ standard.

2) It is also notable that this was a relatively small study. The study included 1814 days, but hospital admissions for COPD averaged only 1.72 per day. Applying the "rough indicator of the degree of precision of effect estimates"

described in the SP (p. 4-6) and discussed above, we find that this study does not meet the test. Thus, using staff criteria this study should be regarded as too imprecise to be used for quantitative analyses.

Utah Valley study

1) The SP cites three reports by Pope and colleagues that evaluated respiratory disease and mortality in the Utah Valley (19-21). But there is no evidence in the study that PM_{10} was "dominated" by $PM_{10-2.5}$. To the contrary, the report contains the following relevant observations:

> a) Levels of TSP and PM_{10}, but not $PM_{2.5}$ were measured and reported in this study. Thus, one cannot determine objectively that PM_{10} was "dominated by coarse particles".
>
> b) The major sources of PM_{10} in the Utah Valley were combustion-related. Those sources and their proportionate contributions were: steel mill (47-80%); wood burning (~16%); road dust (~11%); diesel fuel and oil combustion (~7%) (19). Accordingly, one would expect that $PM_{2.5}$, not PM_{10} would predominate in the area.

Discussion

The studies cited in the CD and SP raise important concerns about the public health risks of ambient coarse particulates and a number of them lend significant support to a weight-of-evidence assessment of the hazard. Unfortunately, they do not sustain quantitative risk assessment.

For example, even if crustal coarse PM were shown to be inherently harmless, it would be reasonable to suppose that sufficiently high contamination levels could render that particulate toxic. Thus, it is not unreasonable to suggest that urban road dust could be more toxic than wind blown crustal PM. On the other hand, such weight-of-evidence is not sufficient to establish and justify specific exposure standards.

Important data deficiencies currently obstruct the setting of such a standard. It is insufficient to argue on the basis of fine PM studies (e.g., (22)) that significant levels of toxic contaminants can be found in urban coarse PM. It is necessary instead to determine whether and when toxic contaminants achieve levels such that their hazards are more than theoretical. For example, the surface area of a given particulate mass declines exponentially as particle size increases. Thus, for any given mass of PM, one can expect that the dose of adsorbed toxicant received via inhalation from contaminated particulate will decline rapidly as particulate size increased.

In other words, if crustal coarse particulate is essentially harmless but urban coarse proves harmful at relevant ambient concentrations, then any necessary coarse PM exposure standard developed in response should be focused on those components that make the urban dust harmful (e.g., transition metals; PAHs; latex particles). Whether such standards are set specifically or categorically, they should be derived from toxicologic and epidemiologic studies that consider appropriately sized PM contaminated by well-characterized toxicants. One would also hope that future epidemiologic studies would be of sufficient size and rigor to be acceptable as the basis of quantitative risk assessment. I urge CASAC to lend its full weight to ensure adequate funding is available to support the gathering of further data, and sound research and analysis of the potential health risks from coarse PM that are of concern to it. Such data and research are necessary to determine whether there is a need for a coarse PM to address public health risks at ambient concentrations, and to characterize the indicator and concentration.

Yours truly,

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Re: Proposed Coarse PM NAAQS
(Federal Register 71:2620-2708)

Dear Administrator Johnson and Acting Administrator Wehrum:

I have prepared the following comments at the request of the National Cattlemen's Beef Association and the National Mining Association in order to share my concerns about the scientific basis for the proposed NAAQS for coarse particulate matter ($PM_{10-2.5}$) that was recently published in the *Federal Register* (*Fed Reg* 71:2620, 01/17/06).

To introduce myself, I have attached a short summary of my experience and qualifications in medicine, epidemiology, toxicology and occupational health science. I am Associate Clinical Professor of Medicine and Epidemiology & Public Health at Yale University. I teach required graduate courses in both Toxicology and Risk Assessment. I also served for 10 years as a founding member of EPA's National Advisory Committee on Acute Exposure Guideline Levels for Hazardous Substances (NAC/AEGL).

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Exhibit H

This is the third set of comments that I have submitted on this issue. Twice during the past year, in May and August, I submitted comments to the Clean Air Scientific Advisory Committee. Then as now, my principal concern is the general lack of scientific support for a coarse particulate matter standard and the failure of EPA to appropriately address that deficiency.

Those limitations were acknowledged in various versions of the Staff Paper (e.g., EPA-452/R-05-005, June 2005):

> "a growing, but still limited, body of evidence on health effects associated with thoracic coarse particles from studies that use $PM_{10-2.5}$ as a measure of thoracic coarse particles." (Final Staff Paper: 5-47)

That concern is restated word-for-word in the Proposed Coarse PM NAAQS:

> "In developing this rationale, EPA has taken into account the information available from a growing, but still limited body of evidence on health effects associated with thoracic coarse particles from studies that use $PM_{10-2.5}$ as a measure of thoracic coarse particles." (*Fed Reg* 71:2653)

The Preamble also acknowledges that similar concerns were expressed by the CASAC, which noted:

> "... significant uncertainties resulting from the limited number of studies to date in which $PM_{10-2.5}$ has been measured and the potentially large exposure measurement errors in such studies". (*Fed Reg* 71:2671)

As discussed below, the actual evidence available to support the Proposed Coarse PM NAAQS is substantially more limited than is acknowledged by EPA. The relative insufficiency of evidence linking coarse particulates to human health effects is repeatedly acknowledged in the Proposed Coarse PM NAAQS. For example, consider Section III.A, which describes the Evidence of Health Effects Related to Thoracic Coarse Particle Exposure. In that very important, but relatively short section (it comprises only 10 pages of the Preamble), EPA reiterates 24 times that the evidence linking coarse particulate to health effects is either "limited" or "very limited". By contrast, EPA does not once describe any of the evidence as "sufficient" or "adequate".

Despite that apparent recognition of these limitations, however, EPA presents the actual data from cited studies in a manner that overstates their informational value. More worrisome is the possibility that the Preamble has been constructed in a manner intended to obscure the deficiencies and to minimize objections that might be raised about the lack of scientific justification for the Proposed Coarse PM NAAQS.

1). For example, the Preamble discusses the most important limitations of evidence in a brief section (*Fed Reg* 71:2671-2), distanced from the primary presentation of the cited studies and their data, and relegated mainly to discussion of an "alternative interpretation" that is strikingly devoid of specific details. Thus, notwithstanding repeated statements about data limitations, many readers will fail to appreciate the actual magnitude of the deficiency of scientific evidence.

a) My concerns are illustrated by the following example. The centerpiece of the presentation of the Evidence of Health Effects is Figure 2 (page 2656), which summarizes the "Effect estimates for associations between short term exposure to $PM_{10-2.5}$ and mortality or morbidity health outcomes ..." The legend to Figure 2 states:

> "for consistency across studies, effect estimates are from single-pollutant, general linear models".

The decision that only data from single-pollutant models would be presented in this centerpiece graphic is at least curious because the compiled literature provides good evidence that single-pollutant models overestimate the effects of coarse particulate. The possibility that such an approach should not be taken, however, is only discussed in the context of the "alternative interpretation":

> "... an alternative interpretation of the available health evidence presented in the Criteria Document and the Staff Paper ... suggests that that the results from one-pollutant $PM_{10-2.5}$ models are confounded by fine particles and gaseous co-pollutants... Taken as a whole, evidence from $PM_{10-2.5}$ epidemiologic studies could be interpreted to suggest that one-pollutant $PM_{10-2.5}$ models suffer from bias due to omitting co-pollutants in the statistical model..." (*Fed Reg* 71: 2671-2)

But even that statement does not reasonably represent the scientific evidence. It implies that this is solely a matter of "interpretation", as though reflective of a philosophical debate. In fact, numerous studies cited in the Proposed Coarse PM NAAQS provide evidence that single-pollutant models overstate the apparent risks of coarse particulate. I am aware of none that proposes the contrary.

For example, consider the Toronto study by Burnett et al. (1), which is cited eight times in the Preamble. That study found that positive associations noted in a single-pollutant model "disappeared after adjustment for O_3, NO_2, and SO_2" (1). But Figure 2 presents only the results of a single-pollutant model from that study, thus wrongly indicating a statistically significant effect of coarse particulate [1]. Or, consider that use of two-pollutant models including both $PM_{2.5}$ and $PM_{10-2.5}$ reduced or eliminated the estimated effects of coarse particulate in the Six Cities study (2) and in studies of Detroit (3,4), Los Angeles (5) and eight Canadian cities (6) [2].

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[1] More surprising is footnote #52 (p. 2657), which disclaims the analytical findings of the multiple-pollutant model in Burnett et al. The footnote states that their results "show relatively consistent effects estimates ... except for the models including NO_2 and all four gaseous pollutants". This footnote implies a preference for relying on an incomplete analysis of a complex dataset. Of greater concern is that EPA has apparently discounted the authors' finding that the association "could be completely explained by NO_2, a risk factor not as widely considered in North American locales as the other criteria pollutants" (1). Similar findings and cautionary advice are found in Thurston et al. (12); significant associations with coarse particulates "were merely a statistical by-product of inter-pollutant confounding ... This points out the importance of considering as many pollutants as possible in such analyses, in order to diminish the chances of being misled..."

I am not alone in pointing to the need to consider multiple-pollutant models in order to correctly understand the effects of coarse particulate. That approach was stressed by the Research Committee of the Health Effects Institute in comments on the Detroit study conducted by Lippmann et al. (3):

> "In order to determine the relative effects of several risk factors on a health outcome, ideally all variables under considerations would be included in a single model."

In the apparent pursuit of "consistency", EPA has selectively presented the least rigorous of the available evidence, thereby minimizing its informational value. Even for those studies which provided results from dual- and/or multiple-pollutant models, EPA has emphasized single-pollutant analyses while discounting the data from more rigorous multi-pollutant analyses. In so doing, EPA has systematically overstated the apparent effects of coarse particulate.

Had EPA correctly acknowledged that the results of single-pollutant models generally overestimate the effects of coarse particulate and that most of the cited studies provided only results of such models, then the even more limited nature of evidence here would have been readily appreciated.

2). Following is another example of the failure to describe and respond to limitations of the evidence presented as justification of the Proposed Coarse PM NAAQS.

In the Final PM Staff Paper (EPA-452/R-05-005, June 2005), EPA Staff described a criterion for deciding whether studies effects data were sufficiently precise to be used in quantitative estimates of exposure-response relationships. In so doing, Staff correctly recognized that some studies are better than others (because of their size or presumably for other reasons) and that studies of lesser quality should not be relied upon as one might rely on studies of higher quality. In particular, the Staff Paper described a "rough indicator of ... precision" that was used for this purpose:

> "The natural logarithm of the mortality-days (a product of each city's daily mortality rate and the number of days for which PM data were available) can be

---

The literature cited by EPA is dominated by studies with analytical models that failed to consider other pollutants and risk factors. Thus the conclusions of Burnett et al. and Thurston et al. give added reasons to view the EPA evidence with caution. I do not agree with the Preamble statement that "effect estimates for associations between PM, including $PM_{10-2.5}$, and health endpoints are generally robust to confounding by gaseous co-pollutants" (*Fed Reg* 71:2660).

[2] These studies are all cited in the Preamble. Results of the Los Angeles and the eight Canadian cities studies were excluded from Figure 2 because they used GAM, rather than GLM analytical models.

> used as a rough indicator of the degree of precision of effect estimates ... staff chose to consider only those urban areas in which studies with relatively greater precision were conducted, specifically including studies that have a natural log of mortality-days greater than or equal to 9.0 (i.e., approximately 8,000 deaths) for total non-accidental mortality." (SP, p. 4-6)

That approach (both specifically and generally) has been deleted from the Proposed Coarse PM NAAQS. As a result, EPA has deleted its Staff's criterion for objectively distinguishing between individual studies. It is interesting to note that if EPA had accepted this criterion, then it would have had to acknowledge that results from the Coachella Valley studies (7-9) and the Six Cities study results from Steubenville (10,11) had been judged to be of "lesser quality".

But the Preamble relies on those two studies repeatedly: The Coachella Valley studies are cited 19 times, while the Steubenville data are cited eight times. At no point does the Preamble indicate that EPA Staff had objectively determined that both data were too imprecise to be used for quantitative assessments and thus their conclusion should be viewed with caution. I am concerned that the failure to indicate those Staff determinations serves mainly to conceal the limitations of those studies [3].

3). A third example of the failure to describe and respond to limitations of the evidence relates to the adequacy of the exposure assessments that underlie each of the individual studies. Concerns about the precision and accuracy exposure assessment can not be separated from concerns about the precision and accuracy of the studies themselves.

a) One aspect of my concern involves the spatial location(s) of monitors used to describe the exposures of study populations. It is generally accepted that coarse PM (e.g., $PM_{10-2.5}$) deposits more rapidly and more locally than does fine particulate. Likewise, it is generally accepted that local sources are of greater importance in determining concentrations of coarse particulate (6). Accordingly, it can be expected that measurements from centrally located monitors will less accurately represent regional exposures to coarse particulate than fine particulate (i.e., $PM_{2.5}$). For that reason, measurements of coarse PM obtained at relatively distant monitoring stations should be viewed with caution, and so should studies that rely on coarse PM measurements obtained relatively far from target populations. When such distant measures are used as the basis for epidemiological studies, efforts should be made to demonstrate that the distant measures do accurately reflect the exposures of target populations.

For example, in an analysis and comments submitted separately, Gale Hoffnagle describes marked spatial variation of fugitive coarse PM emitted by ground level sources such as those characteristic of agricultural and mining activities. His analysis indicates that even when levels at such sources reach several hundred mg/m^3, corresponding levels at a distance of 1000 meters are *de minimis* (i.e., they approach zero mg/m^3). Thus PM monitors located at a distance of 1000 meters or more reflect little or no contribution from such sources.

---

[3] It is also notable, and perhaps related, that despite a statement in footnote 50 (*Fed Reg* 71:2655) that two subsequent reanalyses of the Steubenville data found essentially no significant associations, the Preamble persists in referring to the original Steubenville data as showing "a statistically significant mortality association".

However, a number of the studies cited in the Preamble depended on coarse PM measurements from distant monitors and were apparently not accurate predictors of target population exposures. In the Detroit study by Lippmann et al. (3,4), particulate matter data were obtained from ambient monitors in Windsor, Ontario, several miles from central Detroit. The Staff Paper and the Proposed Coarse PM NAAQS document that levels measured in Windsor were not representative of those in Detroit:

> "In recent years, based on available Windsor and Detroit data from 1999 to 2003, the Windsor monitors used in this study typically have recorded $PM_{10-2.5}$ levels that are generally less than half the levels recorded at urban-center Detroit monitors..." (Staff Paper: 5-68)

Accordingly, on the basis of that exposure concern, the Detroit study must be regarded as providing only limited informative value.

In the Coachella Valley studies (8,9), particulate measures were obtained in Indio, approximately 25 miles from older population centered in the Palm Springs area at the western end of the Valley [4].

b) A second exposure assessment concern is the manner in which coarse particulate levels are determined. The Preamble notes that $PM_{10-2.5}$ measurements are prone to greater exposure errors than are measurements of $PM_{2.5}$ (*Fed Reg* 71:2660). In addition, $PM_{10-2.5}$ levels calculated by the difference method (i.e., subtracting $PM_{2.5}$ from PM_{10}) can be expected to have larger errors than $PM_{10-2.5}$ levels directly measured using dichotomous samplers; the difference method is impacted by two measurement errors, while the direct measurement method has only one. And when the difference method is performed using data from monitors that are not physically co-located, additional exposure assessment errors result because of non-homogeneous spatial distributions of particulate matter.

Finally, estimation of coarse particulate exposures derived from only PM_{10} measurement in areas where measured PM levels are "dominated" by coarse particulate are by far the most uncertain and least accurate. Because of such uncertainty, the findings of epidemiological studies that rely on those exposure assessments should be viewed as the least informative, analogous to ecological studies that are suitable for generating, but not testing hypotheses.

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[4] The population of the Indio area, which is on the Northern rim of the Valley, differs from that of many of the other Valley communities. For example, according to the 2000 Census, 15.2% of the population was in the 45-64 year age group and 9.1% were over 65 years. By contrast, the corresponding proportions were 26.4% and 26.2% for Palm Springs, 30% and 43% for Ranch Mirage and 26.3% and 27.6% for Palm Desert. Those cities, with significantly older populations more prone to cardiorespiratory diseases, are located approximately 10-25 miles away toward the Western end of the Valley.

Consider the effect of categorizing the studies cited in the Preamble on the basis of their exposure assessments.

> a) The highest quality $PM_{10-2.5}$ exposure assessments are those in studies that employed dichotomous samplers.
>
> Dichotomous particulate samplers were used in two Toronto studies (1,12) that considered hospital admissions and two reports from the Harvard Six Cities study, one considering mortality effects (10,11) and other peak flow and asthma in children (2). All four of those studies found no significant effects associated with exposure to $PM_{10-2.5}$.
>
> b) Second tier studies calculated $PM_{10-2.5}$ by the difference method, subtracting $PM_{2.5}$ from levels of PM_{10}. Among the co-location studies cited in the Proposed Coarse PM NAAQS, most suffered important data limitations or deficiencies.
>
> No association of respiratory symptoms and childhood asthma were found for coarse particulate calculated by the difference method in Uniontown and State College (2). There were only marginal associations ($0.05<p<0.10$) between coarse particulate calculated by the difference method and mortality in the Phoenix study (13,14). The Detroit study found small positive associations for coarse particulate but as discussed above, particulate data were obtained miles from the study population and were significantly inaccurate (3,4). The HEI Health Review Committee concluded that data from the Detroit study were inconclusive:
>
> > "...the data do not clearly support a greater effect of one pollutant over another, nor do they establish which pollutants are most likely to cause adverse health effects..." (3) (HEI Synopsis)
>
> The Coachella Valley study (8,9) reported positive associations with mortality and the Seattle study (15,16) reported positive associations with hospital admissions for asthma in non-elderly patients. But both studies suffered from large data gaps that were filled by imputation and arbitrary calculations; in both studies, exposure data were missing for 75% or more of the $PM_{2.5}$ values and, therefore, they were also missing for coarse particulate exposure measures [5].

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[5] In the Coachella Valley study, PM_{10} data were available for a 10-year period, but $PM_{2.5}$ data for only 2.5 years. The missing $PM_{2.5}$ and $PM_{10-2.5}$ were imputed using a predictive function that estimated $PM_{10-2.5}$ as a cubic function of PM_{10}. The predictive function was such a poor fit for $PM_{2.5}$ data that the authors concluded that "predictive models could not be successfully estimated" (9). Accordingly, the calculated values, which represented 75% of the $PM_{10-2.5}$ data, can not be viewed as reliable.

The extent of missing data in the Seattle study is no less extreme. The authors observed: "Numerous missing PM measurements potentially limit our analysis" (15). For the three monitoring

c) The lowest tier studies measured only PM_{10} in areas thought to be dominated by coarse particulate and thereby inferred associations with coarse particulate. The lowest tier studies included "positive" studies in Anchorage (17,18,18), Reno (19), Tucson (20), and the Coachella Valley (7). Each also suffered from additional methodological concerns.

In Anchorage (17,18), the health effects were measured in terms of outpatient visits, not episodes of illness, and included events likely to be primarily infectious (e.g., "sore throat, ear aches"). Repeated visits by the same individual (e.g., emergency visits and follow-up office visits) would result in temporal dependence among outcomes that would effectively underestimate variance and overestimate the significance of associations, perhaps leading to inappropriate rejection of the null hypothesis of no effect of particulate exposures. In addition, outcome measures were not associated with the highest levels of exposure, only with lesser exposure levels.

The Reno study (19) provided no evidence that PM_{10} was dominated by coarse particulate. However, two facts suggest that PM_{10} was dominated by fine particulate, not coarse particulate. First, PM_{10} levels were inversely related to wind speeds, suggesting that those levels reflected not wind-blown crustal particulate, but decreased dispersion of suspended fine particulate. Also, the authors noted that:

> "Higher peaks occurred during the winter season. This may be as a result of increased residential combustion due to cold weather in the study area." (19)

If the authors are correct, then those peaks would have represented fine, not coarse particulate. Accordingly, the relevance of the Reno study to coarse particulate exposures is uncertain at best.

The Tucson study, which evaluated cardiovascular hospitalizations, used data from a monitoring station that was "located in a neighborhood site likely to be representative of population exposure", rather than at a site that would have been "subject to windblown dust" (20). Therefore, it is likely that the Tucson PM_{10} exposure data derived from samples that were actually dominated by fine

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stations considered, no $PM_{2.5}$ data were available for 72-100% of days. The authors "imputed" the missing data. The imputation methods were not described, but the authors indicate that six different imputation methods were used and the results of those six methods were averaged. In addition, the "exposure" data were then "weighted" to favor residential areas, but no justification for that arbitrary weighting scheme was provided. Thus, the "exposure data" in this study were mainly synthetic, rather than empirical, and had been transformed in ways that can not be understood and have not been justified. It is difficult to regard this as a valid observational study.

> particulate. Unfortunately, there were no $PM_{2.5}$ data are available to validate the underlying assumptions of this exposure assessment.
>
> The Coachella study (7) utilized PM_{10} data from monitors located in Indio, 25 miles from the major population center around Palm Springs, where on average PM_{10} levels were 21% greater than in Indio. Given the higher population and vehicular density in Palm Springs, it seems likely that the higher levels reported during the study period in Palm Springs reflected mainly fine combustion particulate, rather than windblown crust.

By means of such a categorization scheme, it can be seen that most of the evidence in support of the Proposed Coarse PM NAAQS is derived from studies with the lowest quality of exposure assessments, while those with highest quality exposure assessments lend no support.

If EPA had used such a 'quality of exposure assessment' approach to prioritize the evidence available [6], it would have been apparent that support for the Proposed Coarse PM NAAQS is mainly found in the least robust studies. Thus, such an approach would have further emphasized the limitations of supporting evidence.

4). In summary, EPA has systematically presented the results of cited studies in a manner that overstates the evidence linking coarse particulate and health effects.

> Data from inferior single-pollutant models have been presented in the centerpiece graphic of the Preamble, while more rigorous analytical results have been relegated to afterthoughts and footnotes.
>
> Studies that EPA Staff deemed to be of inferior quality have been presented as supportive without appropriate qualification.
>
> No apparent effort has been made to distinguish high-quality from lesser-quality studies with respect to the adequacy of their exposure assessments.

One might infer that failure to distinguish between strong and weak studies is motivated by the wish to avoid the exclusion of those positive findings that derive mainly from weaker studies.

5) The Preamble also misleads by its repeated statements that effects associated with coarse PM exposure were not affected by confounding by gaseous co-pollutants:

> "effect estimates ...are generally robust to confounding by gaseous co-pollutants" (*Fed Reg* 71:2660);

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[6] EPA has utilized such an approach for other risk assessments, such as in evaluating evidence of the carcinogenicity of trichloroethylene (e.g., "We divided the cohort studies into three tiers based on the specificity of the exposure information" (25)).

> "associations ... were largely unchanged in most cases when gaseous co-pollutants were included in the models" (*Fed Reg* 71:2657);
>
> "effect estimates ... are largely unchanged with the addition of gaseous co-pollutants to the models" (*Fed Reg* 71:2657).

But whether confounding is demonstrated depends on whether the correct co-pollutants have been included in the analytical model. Burnett et al. (1), for example, emphasized this concern: the apparent effects of particulates "could be completely explained by NO_2, a risk factor not as widely considered in North American locales as the other criteria pollutants." Similar conclusions were reached by Thurston et al. (12). Accordingly, the appropriate concern is not whether the effects of particulates are "generally robust", but whether potentially significant confounding has been properly evaluated. Such evaluations should consider "as many pollutants as possible" (12).

EPA has apparently not performed such evaluations. Instead, the Preamble relies on studies that incompletely evaluated possible confounding as evidence that such confounding is insignificant. However, the evidence provided by more rigorous studies indicates that confounding by gaseous co-pollutants can not be disregarded.

6) The limitations of the underlying evidence and the failure of EPA to adequately address and respond to those limitations are illustrated in the manner in which the Preamble argues that $PM_{10-2.5}$ is significantly associated with asthma. As described below, that argument is composed of hypothetical propositions and incorrect descriptions of cited studies.

a) The Preamble first proposes that because $PM_{10-2.5}$ might deposit in the tracheobronchial region, therefore it has the potential to aggravate asthma at the levels of exposure considered in the NAAQS. Following are examples of that proposition:

> "Deposition of particles to the tracheobronchial region is of particular concern with respect to aggravation of asthma" (*Fed* Reg 71:2654);
>
> "...has the potential to affect lung function and aggravate symptoms, particularly in asthmatics" (*Fed* Reg 71:2655);
>
> "The fractional deposition of elevated coarse particle concentrations is significant in the tracheobronchial region, which is particularly sensitive in asthmatic individuals." (*Fed* Reg 71:2661);
>
> "... the expectation that deposition of thoracic coarse particles in the respiratory system could aggravate effects in individuals with asthma" (*Fed* Reg 71:2668).

The hypothesis (or expectation) that $PM_{10-2.5}$ might aggravate asthma is not necessarily wrongheaded, but its repeated assertion provides neither support nor evidence that such a "potential" effect actually occurs.

b) The Preamble sometimes treats asthma (or "aggravation of asthma") as a distinct disease process, but more generally treats it as merely one of a number of more-or-less generic respiratory diseases.

The following statements, for example, suggest that EPA regards "asthma" as a distinct entity:

> "Evidence available in the last review suggested that aggravation of asthma ..." (*Fed Reg 71*:2656);
>
> "...limited epidemiologic evidence suggesting that aggravation of asthma..." (*Fed Reg 71*:2668);
>
> "The authors conclude that for acute asthma related responses..." (*Fed Reg* 71:2657).

In most places, however, the Preamble does not differentiate between asthma and a variety of acute respiratory diseases (e.g., respiratory infections, pneumonia) and chronic respiratory diseases (e.g., COPD). This is reflected by the following statements:

> "... respiratory morbidity effects, such as aggravation of asthma, increases in respiratory symptoms and respiratory infections..." (*Fed Reg 71*:2655);
>
> "...associations between short-term exposure to $PM_{10-2.5}$ with hospital admissions for respiratory diseases, including asthma, pneumonia and COPD..." (*Fed Reg 71*:2657);
>
> "...respiratory morbidity, such as increased respiratory symptoms and hospitalization for respiratory diseases such as asthma or COPD..." (*Fed Reg 71*:2661).

I suspect that the failure to distinguish asthma from those other acute and chronic diseases mainly reflects the paucity of published data specifically linking $PM_{10-2.5}$ and asthma.

c) The striking paucity of evidence linking $PM_{10-2.5}$ and asthma is made clear by the very few studies cited to support that association. Moreover, most of the cited studies provide less support than is implied in the Preamble.

The Preamble cites two studies [7], Hefflin et al. from southeast Washington and Gordian et al. from Anchorage, in which:

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[7] The Preamble actually cites "the last review" - 62 FR 38679 - in which these two studies are specifically identified.

> "...aggravation of asthma and respiratory infections and symptoms were associated with PM_{10} in areas where thoracic coarse particulate were a much greater fraction of PM_{10} than were fine particles" (*Fed Reg* 71:2657).

But, contrary to statements in the Preamble, Hefflin et al. (21) found no association between high-level exposure to PM_{10} and aggravation of asthma, even at 24-hour PM_{10} levels of 1035-1689 $\mu g/m^3$. To the contrary, those authors report:

> "... it is surprising that we not only found no significant association between PM_{10} and asthma, but we found relatively few emergency room admissions for asthma in a community that would be expected to have 4800 persons with asthma." (21)

The Gordian studies (17) suffer from potentially important flaws that limit its informational value. As discussed above, health effects were measured as doctors' visits, not episodes of illness, which may have led to overestimating the significance of associations. In addition, associations were noted for asthma and upper respiratory infections (URI) with a temporal relationship suggesting that onset of URI preceded the onset of asthma attacks [8]. Also, visits were not increased during the peak exposure days, when PM_{10} levels averaged 565 $\mu g/m^3$ and peak levels exceeded 3000 $\mu g/m^3$.

Notably, URI itself has been associated with asthma attacks in asthmatic children (22) and lower airway effects in normal children (23). Because of the apparent cause-and-effect relationship between URI and asthma attacks generally and the apparent correlation between URI and asthma visits in the Gordian study, it is not possible to determine whether those asthma visits reflected PM_{10} exposure vs. URI. In short, it is not possible to determine the extent to which the Gordian data might reflect the adverse effects of PM_{10}.

The Preamble also states that three "new US and Canadian epidemiologic studies" reported associations between short-term exposures to $PM_{10-2.5}$ with hospital admissions for "respiratory diseases, including asthma" (*Fed Reg* 71:2657). The three cited studies are from Toronto, Detroit and Seattle. However, the Preamble statement is incorrect and misleading.

> The Toronto study by Burnett et al. (1) did not find such an association. A multi-pollutant analysis found that any apparent association "was eliminated", with a relative risk of 1.007. It would be improper (and, perhaps, absurd) if EPA regarded relative risks of 1.007 as indicative of meaningful associations.

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[8] Doctors' visits for URI were most closely associated with same-day PM_{10} levels, while asthma visits were most closely associated with prior day PM_{10} levels. That suggests that URI preceded asthmatic symptoms. My personal experience (as an internist, emergency physician, parent and patient) is that visits for acute asthmatic attacks are more likely to occur shortly after the onset of symptoms, whereas URI visits occur after a longer delay, when symptoms and signs seem unusually persistent or severe. Thus, it seems likely that the onset of URI actually preceded asthma by several days.

> The cited Detroit study (16) was not a "new study", but a reanalysis of data from the older Lippmann et al. study (3). As discussed above, the Detroit study relied on particulate levels measured miles away in Windsor, Ontario and the HEI Health Review Committee concluded that data from the Detroit study were inconclusive.
>
> Likewise, the Seattle study (16) was not a "new study", but a reanalysis of Sheppard et al (15). As discussed above, exposure data were so lacking that 75% of coarse particulate data were "imputed". Also, the authors noted that wood burning was a "major contributor to PM", that vehicular exhaust was the second largest source of PM, and that the pollutant most closely associated with asthma was carbon monoxide, "an important environmental indicator of incomplete combustion, particularly from mobile sources" (15).
>
> Given the lack of measured coarse particulate data and the evidence that combustion-related fine particulate was an important pollutant in Seattle, there is essentially no basis to conclude that coarse PM in Seattle caused asthma-related hospitalizations.

The Preamble also mischaracterizes the findings of Schwartz and Neas (2) with respect to asthma. The Preamble states:

> "The authors conclude that for acute asthma related responses as well as daily mortality, fine particles are a stronger predictor of health response than are thoracic coarse particles." (*Fed Reg* 71:2657)

That statement implies that in addition to the large association seen with fine particles, Schwartz and Neas also found an association between coarse particles and asthma. That is not correct, as reflected by the authors' actual statements:

> "For lower respiratory symptoms, the association was stronger for all of the fine-particle measures than for CM [coarse particle mass] in single pollutant regressions. A model including both CM and $PM_{2.5}$ resulted in a substantial reduction in the effect of CM, with little evidence that the remaining effect was different from zero." (4)

EPA has incorrectly presented these negative findings as though Schwartz and Neas provided support for the Proposed Coarse PM NAAQS.

It is surprising to realize that the above studies reflect the totality of epidemiological data cited in the Preamble as support for the proposition that $PM_{10-2.5}$ aggravates asthma. These studies provide no such support, either individually or as a group.

d) There are other relevant studies that have been ignored in the Preamble discussion of asthma, perhaps because their findings showed no association of coarse particulate and asthma. Consider, for example, the three-year study by Rabinovitch et al. (24) that specifically considered the effects of wintertime air pollutants on urban minority children at "highest risk for asthma morbidity". The children were students at a special school, operated at the National Jewish Hospital in Denver, which specifically enrolled children with chronic diseases including asthma. The school was located in a community where PM_{10} is dominated by coarse particulate; during the study period, coarse particulate on average comprised 61.2% of PM_{10}.

For two years, exposure data (including PM_{10} and $PM_{2.5}$) were obtained from EPA monitors located 100 meters from the school. During the third year, particulate data were obtained from a community monitoring station located 2.8 miles from the school. Children were monitored for asthma symptoms, asthma exacerbations, twice-daily FEV_1 and peak flows, use of asthma medications, and URI events. School activities were not modified in response to pollution alerts "so as not to bias any potential pollution effects".

Associations between air pollutants and asthma outcomes were found in simple models, but not in complex modeling that included all pollutants and time-dependent covariates such as URI events. Using the more complex model, no significant associations were observed between pulmonary function and PM_{10}. Asthma symptoms were significantly associated with ozone levels, but not PM_{10} and no significant associations were noted between asthma exacerbations and PM_{10}. By contrast, URI symptoms were strongly associated with decreased pulmonary function, increased medication usage, asthma symptoms, and asthma exacerbations.

These findings suggest that exposure to coarse particulate does not provoke asthma symptoms, does not adversely impact pulmonary function and does not induce asthma attacks. The strong associations seen between URI, pulmonary function and asthma lend support to the view that the results of the Gordian studies reflect URI events, rather than coarse particulate exposures.

e) In summary, it should be clear from the very few, very limited, and uncertain studies cited in the Preamble that there is no sound basis for concluding that coarse particulates aggravate asthma or provokes asthma symptoms, even at exposure levels considerably higher than those considered in the Proposed Coarse PM NAAQS. EPA arguments in favor of that association are composed of hypothetical propositions and incorrect or incomplete descriptions of the cited studies.

Conclusion

There is significant paucity of scientific support for the Proposed Coarse PM NAAQS and the scientific studies cited by EPA in support of the NAAQS suffer from significant methodological limitations.

Although EPA repeatedly acknowledges that the database suffers such limitations, it persists in presenting the accumulated data as sufficient to justify the Proposed NAAQS. But in addition to those acknowledged by the Agency, a detailed review of the cited studies reveals numerous deficiencies that EPA has either not recognized or chosen to ignore.

Unlike many other EPA risk assessments that thoughtfully sorted strong from weak studies, emphasizing evidence from the former and discounting that from the latter, EPA in this case seems unwilling to discard any "finding" that might somehow be construed as supporting its NAAQS. That leads to important inadequacies in the justification and support of its proposed policy.

The majority of findings presented as supporting evidence derive from the methodologically weakest studies, while the methodologically most robust studies yield essentially no support. EPA relies on the least rigorous of analytical approaches (e.g., single pollutant models vs. multi-pollutant models), minimizes or ignores potential confounding (e.g., URI events inducing asthma attacks, gaseous co-pollutants) and, as discussed above, by misrepresenting study findings.

A detailed, balanced reading of the evidence indicates no basis to justify regulating of $PM_{10-2.5}$, only arguments and hypotheses that mainly reflect biological plausibility rather than empirical findings. The general lack of evidence persists even at exposure levels substantially higher than those considered health relevant in the Proposed Coarse PM NAAQS.

I find insufficient scientific justification for the adoption of the Proposed Coarse PM NAAQS.

Yours truly,

Jonathan Borak, MD, DABT, FACP, FACOEM

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2. Schwartz J, Neas LM: Fine particles are more strongly associated than coarse particles with acute respiratory health effects in schoolchildren. Epidemiol 11:6-10, 2000.

3. Lippmann M, Ito K, Nadas A, et al: Association of particulate matter components with daily mortality and morbidity in Urban populations. Cambridge: Health Effects Institute, 2000.

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8. Ostro BD, Broadwin R, Lipsett MJ: Coarse and fine particles and daily mortality in the Coachella Valley, California: A follow-up study. J Exp Analysis Environ Epidemiol 10:412-419, 2000.

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19. Chen L, Yang W, Jennison BL, et al: Air particulate pollution and hospital admissions for chronic obstructive pulmonary disease in Reno, Nevada. Inhal Toxicol 12:281-298, 2000.

20. Schwartz J: Air pollution and hospital admissions for cardiovascular disease in Tucson. Epidemiol 8:371-377, 1997.

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JONATHAN BORAK & COMPANY, INC.

Specialists in Occupational & Environmental Health

November 9, 2009

U.S. Environmental Protection Agency
Office of Environmental Information (OEI) Docket
Mail Code: 2822T
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

**Re: Integrated Science Assessment for Particulate Matter,
Second External Review Draft (July, 2009)
Docket ID Number EPA-HQ-ORD-2007-0517**

Submitted Electronically

Dear Sir or Madam:

I have prepared the attached comments at the request of the National Cattlemen's Beef Association, the National Mining Association, and the Newmont Mining Corporation in order to share my concerns about the scientific interpretations and judgments that have apparently been adopted by EPA in the Second External Review Draft of the Integrated Science Assessment for Particulate Matter (July, 2009). My comments are filed in support of their comments, which are being submitted separately.

Many thanks in advance for allowing me this opportunity to contribute to the important work of your agency.

Yours truly,

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EXHIBIT 9

Comments on:
Integrated Science Assessment for Particulate Matter – Second External Review Draft (July 2009)

Jonathan Borak, MD, DABT, FACP, FACOEM, FRCPC
November 9, 2009

I have prepared the following comments at the request of the National Cattlemen's Beef Association, the National Mining Association, and the Newmont Mining Corporation in order to share my concerns about the scientific interpretations and judgments that have apparently been adopted by EPA in the Second External Review Draft of the Integrated Science Assessment for Particulate Matter (July, 2009).

To introduce myself, I am Clinical Professor of Epidemiology & Public Health and Clinical Professor of Medicine at Yale University. I teach required graduate courses in both Toxicology and Risk Assessment. I also served for 10 years as a founding member of EPA's National Advisory Committee on Acute Exposure Guideline Levels for Hazardous Substances (NAC/AEGL).

This is the fourth set of comments that I have submitted on issues related to the development of an NAAQS for coarse particulate matter ($PM_{10-2.5}$). Two earlier sets of comments were submitted to the Clean Air Scientific Advisory Committee in 2005 and one set to Administrator Johnson in 2006. Then as now, my principal concern is the lack of scientific support for a coarse particulate matter standard.

In these comments, I will focus on the informational limitations and uncertainties of the recent study by Zanobetti and Schwartz (Z&S) [1], a study that seems to play an inordinately important role in the draft ISA. As published and included in the ISA, that study suffers from the following important limitations and uncertainties:

1. The numbers of deaths in the $PM_{10-2.5}$ analyses are not described
2. The $PM_{10-2.5}$ data are subject to unquantified uncertainty
3. The effects of potential confounders and collinearity were not considered
4. The criteria for model selection are not adequately described and only a small minority of results was reported
5. The analytical results are inconsistent
6. The analytical findings cannot be generalized

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[1] Zanobetti A, Schwartz J: The effect of fine and coarse particulate air pollution on mortality: A national analysis. *Environ Health Perspect* 117:898-903, 2009

In the following paragraphs I discuss these concerns in more detail. Ultimately, it is not possible to know whether these limitations reflect inadequacies of the research or its reporting, but in either case the report is not adequate to provide the basis to justify promulgation of a NAAQS for $PM_{10-2.5}$.

1. The numbers of deaths in the $PM_{10-2.5}$ analyses are not described

In their published report, Z&S reported the following information regarding mortality data used in their analysis:

> "In the 112 cities during the study period 1999-2005, there were 5,609,349 total deaths, 1,787,078 for CVD, 397,894 for MI, 330,613 for stroke, and 547,660 for respiratory disease." (p. 900)

This data set seems impressively large and precisely described, but that is not the number of deaths in the analysis. Cities were included in the study if there were exposure data foı at least 265 days in a given year and, as documented in the Supplemental Material, many cities were not included for the full study duration. The actual numbers of study days included for each city are not provided. Based on the exclusion of years and days, it is apparent that the actual mortality data were significantly less than reported.

Of greater concern is the fact that only 47 cities were included in the $PM_{10-2.5}$ analyses, of which only 11 (23.4%) were included for the full duration, i.e., 1999-2005. Because the authors provided the average daily numbers of deaths by city, but not the number of days that each city was included in the study, it is not possible to estimate the actual numbers of deaths included in the $PM_{10-2.5}$ analysis. Of the nine cities with the highest daily all cause mortality (i.e., >40/day), $PM_{10-2.5}$ data were available for only four and none was included for the full duration of the study.

In summary, the study report overstates the quantity of mortality data that were included in the analyses. Presumably specific daily mortality data, not average daily data, were included in the time-series analytical model, but those data were not reported and cannot be calculated from the supplemental material. Likewise, the distributions of city-specific mortality were not described.

2. The $PM_{10-2.5}$ data are subject to unquantified uncertainty

2.a Uncertainties due to sampling methods

Environmental data for $PM_{2.5}$ and PM_{10} were obtained from the EPA Air Quality System and $PM_{2.5-10}$ values were calculated using the difference method. It is not clear whether Z&S considered the technical limitations of the data that resulted from differing sampler flow rates and differing collection conditions. The following describes the manner in which EPA addressed those concerns in its assessment of spatial distributions:

> "Since $PM_{10-2.5}$ is not routinely measured and reported to AQS, co-located PM_{10} and $PM_{2.5}$ measurements from the AQS network were used to investigate the spatial distribution in $PM_{10-2.5}$. Only low-volume FRM or FRM-like samplers were considered in calculating $PM_{10-2.5}$ to avoid complications with vastly different sampling protocols (e.g., flow rates) between the independent PM_{10} and $PM_{2.5}$ measurements ... $PM_{2.5}$ concentrations are reported to AQS at local conditions whereas the PM_{10} concentrations are reported at standard conditions. Therefore, prior to calculating $PM_{10-2.5}$ by subtraction, the PM_{10} AQS data were adjusted to local conditions on a daily basis using temperature and pressure measurements from the nearest National Weather Service station." (ISA, p. 3-64)

There is no indication in their report that Z&S adjusted for differing flow rates or otherwise excluded samplers that were not "low-volume FRM or FRM-like" and there is no indication that they adjusted PM_{10} data to local weather conditions.

If Z&S did not exclude high-flow samplers and if they failed to adjust PM_{10} to local weather conditions, then their exposure data fall below the qualitative standards that EPA adopted for its own $PM_{10-2.5}$ studies.

2.b Uncertainties due to data averaging and regional distributions of coarse PM

Environmental data for $PM_{2.5}$ and PM_{10} were obtained at county levels, not for the cities *per se*. Where a city's population extended "beyond the boundaries of one county", the data from those several counties were aggregated. When more than one monitor was available, the results were averaged, but monitors that were not "well correlated" ($r<0.8$) with others in the county (or counties) were excluded. The proximity of monitors to the study's urban populations was apparently not considered, i.e., proximate monitors were not favored over distant ones, and distance was apparently not a criterion for excluding monitors.

This method raises a number of concerns. Z&S acknowledged that some study populations lived far from the monitors:

> "One possible explanation for the lower effect in the Mediterranean region ... is more measurement error due to the extremely large counties in California, where people may live far away from the monitors." (p. 901)

This is of particular relevance because it is generally accepted that coarse PM deposits more rapidly and more locally than does fine particulate. Likewise, it is generally accepted that local sources are of greater importance in determining concentrations of coarse particulate.[2] Thus, one should expect that data from "far away" monitors will less accurately represent regional exposures to coarse particulate than fine particulate (e.g., $PM_{2.5}$). Measurements of coarse PM obtained at relatively distant monitoring stations (or calculated from PM_{10} data obtained at distant monitoring stations) should be viewed with caution, and caution is also necessary when evaluating studies that rely on $PM_{10-2.5}$ measurements obtained relatively far from target populations.

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[2] Burnett RT et al: Association between short-term changes in nitrogen dioxide and mortality in Canadian cities. *Arch Environ Health* 59:228-236, 2004.

When such distant measures are used as the basis for epidemiological studies, efforts should be made to demonstrate that the distant measures accurately reflect the actual exposures of target populations. This specific concern undercut the probative value of the Detroit study by Lippman et al. [3]. The failure of Z&S to demonstrate that calculated $PM_{10-2.5}$ measurements reflected the actual exposures of the study's urban populations raises important concerns about the study's informative value.

The ISA discounts the significance of this concern, asserting that such measurement errors would lead to nondifferential misclassification which, in turn, would bias results toward the null:

> "Because of the greater spatial heterogeneity of $PM_{10-2.5}$, exposure measurement error is more likely to bias health effect estimates towards the null for epidemiologic studies of $PM_{10-2.5}$ versus PM_{10} or $PM_{2.5}$, making it more difficult to detect an effect of the coarse size fraction." (p. 6-131)

However, a recent EPA study in Phoenix contradicted that view. Wilson et al.[4] found that increasing distance from a central monitor was associated with an increasing positive association of $PM_{10-2.5}$ with cardiovascular mortality:

> "The % risk and statistical significance for the association of mortality with $PM_{2.5}$ fell off with distance from the monitor, as would be expected if exposure error increased with distance. However, the % risk for $PM_{10-2.5}$ increased ..." (p. S11)

Thus it should be apparent that the biasing effects of measurement errors, such as those likely to have been present in the Z&S data, cannot be simply discounted on the presumption that such errors will necessarily lead to negative bias. To the contrary, as seen in Wilson et al [4], they can lead to positive bias and incorrect inferences of causality.

A further concern is the exclusion of monitors that were not "well correlated" with other county monitors, which thereby resulted in exclusion of an unstated amount of data. It would be important to know whether any of the excluded monitors were actually closer to, and therefore more representative of the population in any of the study cities, than the monitors that were included. It would also be useful to know how many monitors and how much data were excluded in this way.

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[3] Lippmann M, et al: Association of Particulate Matter Components with Daily Mortality and Morbidity in Urban Populations. Cambridge: Health Effects Institute, 2000; Ito K. Associations of particulate matter components with daily mortality and morbidity in Detroit, Michigan. In: *Revised Analyses of Time-series Studies of Air Pollution and Health,* Boston: Health Effects Institute, pp. 143-156, 2003.

[4] Wilson WE et al: Influence of exposure error and effect modification by socioeconomic status on the association of acute cardiovascular mortality with particulate matter in Phoenix. *J Expo Sci Environ Epi* 17:S11-S19, 2007.

3. The effects of potential confounders and collinearity were not considered

3a. Bias due to confounding

Z&S performed single pollutant analyses for $PM_{2.5}$ and $PM_{10-2.5}$ and they also performed two-pollutant analyses that included both $PM_{2.5}$ and $PM_{10-2.5}$. They did not consider the confounding effects of gaseous pollutants and they did not consider the probable collinearity between $PM_{2.5}$ and $PM_{10-2.5}$.

Reliance on single pollutant models substantially reduced the probative value of the resulting analysis. The ISA describes the failure to investigate confounding by gaseous copollutants as a "limitation" of the study (p. 6-301). A more general statement of concern is found in a report by the HEI Research Committee, which expressed the view that single-pollutant models provide only limited insights [5]:

> "In order to determine the relative effects of several risk factors on a health outcome, ideally all variables under considerations would be included in a single model."

An even stronger viewed was made by Klemm and colleagues who proposed that single-pollutant models can serve as screening tools, but are not a valid basis for determining the importance of any given pollutant [6]:

> "It is axiomatic ... single-pollutant regressions may be a useful screening tool but cannot provide valid judgments as to the relative importance of a given pollutant." (p. 134)

Beyond such methodological concerns, there are empiric data that document confounding by gaseous copollutants in PM studies. Numerous studies, for example, have reported important confounding of coarse PM by NO_2 for both hospitalizations and mortality. For example:

> A significant effect of $PM_{10-2.5}$ on hospital admissions for respiratory diseases was reported in Toronto when a single-pollutant model was used, but the effect "was eliminated" when NO_2 was included in the analysis model. [7]

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[5] HEI Research Committee Comments in: Lippmann M, et al: *Association of Particulate Matter Components with Daily Mortality and Morbidity in Urban Populations.* Cambridge: Health Effects Institute, 2000; p. 80.

[6] Klemm RJ, et al: Daily mortality and air pollution in Atlanta: Two years of data from ARIES. *Inhal Toxicol* 16(suppl 1):131-141, 2004.

[7] Burnett RT, et al: The role of particulate size and chemistry in the association between summertime ambient air pollution and hospitalization for cardiorespiratory. *Environ Health Perspect* 105:614-620, 1997.

> In a study of 12 Canadian cities, apparent associations of $PM_{10-2.5}$ with mortality were seen in a single pollutant model, but were reduced by more than 50% and became non-significant when NO_2 was included in dual-pollutant model. [2]
>
> In a subsequent pooled analysis of ten Canadian cities, which may have used an overlapping dataset, NO_2 had the strongest association with non-accidental mortality. Apparent effects of PM became non-significant when NO_2 was included in the analytical model. [8]

Because the limitations of single-pollutant regressions are so well recognized, and because confounding of PM studies by NO_2 has been well documented, it is surprising that the ISA has given such prominence to this study, which generally failed to consider gaseous copollutants and specifically failed to consider confounding by NO_2.

Moreover, previous studies (e.g., Burnett et al. [2]; Brook et al. [8]) have reported that NO_2 was associated with seasonality effects similar to those reported by Z&S for $PM_{10-2.5}$. Thus, it seems possible that both the magnitude of the $PM_{10-2.5}$-associated mortality effects reported by Z&S and also the seasonality of these effects are attributable to confounding by NO_2. It is unfortunate that such possibilities were not explored.

3b. Bias due to collinearity

Z&S included $PM_{2.5}$ and $PM_{10-2.5}$ in a two-pollutant model, but they did not evaluate their possible collinearity. This specific concern was raised in the ISA:

> "models that include both PM10-2.5 and PM2.5 may suffer from instability due to collinearity." (p. 6-131)

Such collinearity would raise the possibility that risks were double-counted. It is unfortunate that such possibilities were not explored.

4. The criteria for model selection are not described and only a minority of results was reported

4.a Model selection

Z&S reports results for their time series analyses using PM concentrations averaged over the day of death and prior day (lag01):

> "We investigated the association between $PM_{2.5}$ and PM coarse concentrations averaged over the day of death and day before death and mortality with a time series analysis." (p. 899)

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[8] Brook JR et al: Further interpretation of the acute effect of nitrogen dioxide observed in Canadian time-series studies. *J Expo Sci Environ Epi* 17:S36-S44, 2007.

It is apparent that they also performed numerous other analyses. For example, the refer to a "distributed lag model for 4 days, from the same day and up to 3 days earlier" and Figure 2 graphically presents cause-specific mortality data for each of 4 days (i.e., lag days 0-3). It seems likely that at least five different lag models were explored, but that the only data actually reported were from the lag01 analysis. Z&S also described a number of other variable aspects of their model fitting, including treatments for seasonality, ambient temperature, and day-of-the-week. The authors did not indicate whether they explored the effects of varying the numbers of degrees of freedom in their smoothing procedures; a recent report demonstrated that such decisions can significantly affect analytical results. [9]

It seems probable that numerous models, perhaps many, were fit to the data before a "best fit" model was chosen for the report. It is thus likely that analyses were performed repeatedly, with numerous alternative combinations and choices of parameters and adjustments and smoothing algorithms, but only a very limited set of results was presented. If this is correct, then it raises concerns about overestimation bias due to multiple tests and comparisons.[10]

Because the raw data were not provided, the extent and types of alternative analyses performed were not described, and the results of alternative analyses were not presented, the reported results must be viewed with caution. It seems likely that numerous analyses were performed on this dataset, but only the strongest result reported, thus the findings seem appropriate only for hypothesis generating, not hypothesis testing.

4.b Only a minority of results was reported

The failure to report most of the analytical data can be viewed from another perspective. Z&S analyzed mortality in 47 cities, considering overall mortality plus four mortality sub-categories. They also analyzed those data for each of four seasons plus all seasons combined.

Thus for each lag model, there were 235 individual city results for mortality categories (i.e., 47 (cities) x 5 (mortality categories) = 235) and when seasonality categories were included there were five times as many individual results (i.e., 47 (cities) x 5 (mortality categories) x 5 (season categories) = 1175), where each individual result represented a unique combination of [city-death category-season category]. In addition, for each lag model there were another 26 results representing the averages of those [city-death category-season category] groupings, for a grand total of 1201 analytical results per model.

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[9] Peng RD et al: Seasonal analyses of air pollution and mortality in 100 US cities. *Am J Epidemiol* 161:585-594, 2005.

[10] For example, see Jeffries NO: Multiple comparisons distortion of parameter estimates. *Biostatistics* 8:2500-504, 2007.

If five different lag models were explored, then there would have been more than 6000 results, reflecting individual combinations of [city-death category-season category-lag model]. However, the Z&S report included only 26 results for $PM_{10-2.5}$ (Table 2).

Z&S also stratified cities into six "climate classifications", which further increased the number of analytical results. In their report, they presented only 30 results, reflecting six "climate classifications" and five death categories for one lag model (Table 4).

Because detailed results were not reported, it is not possible to evaluate the consistency of the reported findings across the various cities and seasons, nor is it possible to estimate the uncertainty that characterized those findings. The aggregated results would be substantially less informative if no associations or negative associations with $PM_{10-2.5}$ had been seen in a large proportion of the individual cities. Ultimately, the probative value of these data depends on both the magnitude and consistency of the observed associations.

5. The analytical results are inconsistent

The findings reported by Z&S raise concerns about apparent inconsistencies. Although the report did not include city-specific findings, significant between-city heterogeneity was reported for overall mortality during spring, summer and autumn. Significant heterogeneity was also reported for respiratory mortality during the spring, when the largest positive effect of $PM_{10-2.5}$ was seen. Such heterogeneity suggests that there was a wide range of city-specific findings, with some cities showing no effects and perhaps others with significant negative effects. However, because the actual results were not provided, it is not possible to evaluate these possibilities.

The finding that $PM_{10-2.5}$ has adverse effects mainly during the spring, but not in other seasons is challenging. Z&S speculate that this reflects greater indoor PM penetration during the spring, but they also note that their findings are at variance with a recent NMMAPS report that found a different seasonal distribution of PM_{10}-related mortality in 100 US cities. [9]

The ISA also noted inconsistencies within the Z&S report and between the associations reported by Z&S and the results previously reported by others:

> "An examination of $PM_{10-2.5}$ mortality associations on a national scale found a strong association between $PM_{10-2.5}$ and respiratory mortality, but this association varied when examining city-specific risk estimates (Z&S, 2009). Additionally, copollutant analyses were not conducted in this study, and the associations observed are inconsistent with those reported in single-city studies." (p. 6-246)

In addition, Z&S reported that $PM_{10-2.5}$ was not associated with any effects in the area classified as "dry", a climate area that includes the cities of Phoenix and Albuquerque: "there was no effect in the dry region" (p. 901). But, as noted in the ISA, that finding is inconsistent with the results of at least four other studies:

> "The lack of a $PM_{10-2.5}$-mortality association in the 'dry' region in this study is in contrast to the result from three studies that analyzed Phoenix data and found associations, as reviewed in the 2004 PM AQCD, and Wilson et al." (6-294)

6. The analytical findings cannot be generalized

The plausibility of the Z&S analytical findings rests on a series of hypotheses and speculations:

> The absence of effects in the "Mediterranean region" (i.e., California, Oregon and Washington) might have been due to measurement error because the counties are so large.
>
> The greater effect in spring might have been due to greater penetration of PM into residences.
>
> The regional variation of $PM_{10-2.5}$ effects suggests "regional variations in the toxicity of coarse particles" which requires "further study".

Each of these hypotheses might prove correct, but none has been evaluated and the data needed to independently evaluate them has not been provided.

Thus, these study findings seem inconsistent across seasons, inconsistent between cities, and inconsistent with other published studies. For such reasons, the findings do not provide the basis to generalize, i.e., to describe the risks of $PM_{10-2.5}$ at a national level. The study successfully generates a variety of PM-related hypotheses, but unfortunately it fails to test those hypotheses and it does not serve as a sufficient basis to justify promulgation of an NAAQS.

Summary

The recent Z&S study represents a major effort to evaluate possible associations between $PM_{10-2.5}$ and mortality. It is unfortunate that this report does not allow such associations to be reasonably determined. It should be clear that the findings described in the June, 2009 issue of *Environmental Health Perspectives* leave many unanswered questions and they are not adequate to justify promulgation of a $PM_{10-2.5}$ NAAQS or support any revision to the PM_{10} NAAQS. To the contrary, the plausibility of the findings remains uncertain.

In the interest of understanding the adverse effects of exposure to coarse PM and in order to make full use of the Z&S data, I encourage EPA to ask HEI to review and comment on the data set and the analytical methods, and perform reanalysis if appropriate. It would be a shame to waste the efforts that Z&S have already made, but it would be worse to act on the basis of their published findings.

Jonathan Borak, MD, DABT

Dr. Jonathan Borak is Associate Clinical Professor of Medicine, Epidemiology and Public Health at Yale University, a faculty member of the Yale Occupational and Environmental Medicine Program, and Director of the Yale University Interdisciplinary Risk Assessment Forum. He is also Adjunct Associate Professor of Occupational Medicine at Johns Hopkins University. Dr. Borak received his BA with Honors from Amherst College and earned his MD at New York University. He completed a residency in internal medicine at Montreal's Royal Victoria Hospital, was a Robert Wood Johnson Foundation Clinical Scholar at McGill University, and a Postdoctoral Fellow in Internal Medicine at Yale University. He is Board certified in Internal Medicine, Occupational Medicine, and Toxicology and is a Fellow of the American College of Physicians, the American College of Occupational and Environmental Medicine, and the Royal College of Physicians of Canada.

Dr. Borak's professional activities combine research, teaching, and consulting in the areas of toxicology, risk assessment and clinical medicine. He has published numerous peer-reviewed scientific articles and written or edited textbooks, monographs and book chapters on a variety of medical and scientific issues. He received the 2003 Adolph G. Kammer Merit in Authorship Award and the 2004 Robert A. Kehoe Award of Merit of the American College of Occupational and Environmental Medicine.

Dr. Borak is a founding member of US EPA's National Advisory Committee to Develop Acute Exposure Guideline Levels for Hazardous Substances (recipient of the 2000 Hammer Award of the National Partnership for Reinventing Government) and serves on the National Research Council Committee on Toxicologic Assessment of Low-Level Exposures to Chemical Warfare Agents. He is currently Chair of the Council on Scientific Affairs of the American College of Occupational and Environmental Medicine (ACOEM) and is a former member of the ACOEM Board of Directors. He has served on the National Faculty of the American Heart Association, as Councilor of the American College of Emergency Physicians, on National committees of the American Industrial Hygiene Association, as President of the Occupational and Environmental Medicine Association of Connecticut and as Chairman of the Connecticut State Medical Society Committee on Preventive Medicine and its Committee on Emergency Medical Services.

He is a member of the Editorial Boards of *Journal of Occupational and Environmental Medicine* and *Journal of Occupational and Environmental Hygiene,* was Associate Editor of *Occupational and Environmental Medicine Reports*, and has served as an editorial board reviewer for *Toxicology and Applied Pharmacology, Toxicological Sciences, American Industrial Hygiene Association Journal, Journal of Human and Ecological Risk Assessment, Toxicology and Industrial Health, Annals of Emergency Medicine,* and other peer-reviewed publications. He was editor and course director of the *Core Curriculum in Environmental Medicine* (ACOEM, 1994) was a Guest Editor and Peer Reviewer of ATSDR's *Case Studies in Environmental Medicine* and Peer Reviewer of ATSDR's *Toxicology Profiles.*

Jonathan Borak, MD: Representative Publications

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Mr. WHITFIELD. Thank you, Mr. Foglesong.

Mr. Rogers, you are recognized for 5 minutes.

STATEMENT OF KEVIN ROGERS

Mr. ROGERS. Thank you, Mr. Chairman. Members of the subcommittee, my name is Kevin Rogers. I am a fourth-generation farmer. I farm with my family over 7,000 acres of land in Arizona. We produce cotton, alfalfa, wheat, barley and corn silage. I am currently the President of the Arizona Farm Bureau and I also serve on the USDA Air Quality Task Force, which advises the Secretary of Agriculture on Federal clean air policies that affect farmers.

I am pleased today to testify on behalf of the American Farm Bureau Federation in support of H.R. 1633, the Farm Dust Regulation Prevention Act. My farm in Arizona lies in one of the worst areas for dust PM 10 in the Nation. Within the past couple of months, four huge naturally occurring dust clouds rose from the desert floor and swept over Phoenix. Also, some of that happened in Texas as well. It covered Tucson in southern Arizona as well. This is the dust that EPA regulates under the coarse particulate matter with the National Ambient Air Quality Standard. H.R. 1633 provides a reasonable and commonsense approach to controlling ambient PM in a way that recognizes the natural occurrence of farm dust while also recognizing the public health mandate the Clean Air Act requires. By excluding nuisance farm dust from regulation, the bill allows EPA to continue regulating manmade emissions of particulate matter while at the same time not trying to regulate natural occurrences. The exclusion focuses EPA's attention on things that EPA can control rather than trying to regulate nature.

The bill does not roll back any EPA protections afforded under the Clean Air Act. Rather, it reinforces the idea that regulatory decisions should be based on sound science.

The record here is clear that scientific data on possible health effects of PM_{10}, or dust, is highly uncertain. The bill provides the necessary flexibility for EPA to step in and regulate if the science more conclusively shows the naturally occurring farm dust causes adverse health effects. The bill recognizes the great disparity in the coarse PM_{10} ambient air quality levels from one part of the country to another, from rural to urban areas, by providing for State and local regulation of rural nuisance dust from farming areas. The bill allows management flexibility to deal with unique local circumstances.

We do applaud the recent announcement by Administrator Jackson that EPA will not propose changes to the current PM_{10} standard. That does not mean that farm dust is not or will not be regulated under the Clean Air Act. For those of us in a coarse PM_{10} nonattainment area, our activities have already been regulated and will continue to be regulated. The Phoenix area has not been in compliance with the coarse PM_{10} NAAQS standard for many years.

Arizona Farm Bureau participated with the State to develop a coarse PM_{10} permit to control agricultural PM_{10} emissions and reduce our agricultural practices that produce PM. The program developed best management practices in three different categories. The farmers are required to adopt one BMP in each category. The program was recently amended to require two BMPs from each category. Now the EPA and the State, because we continue to be in a nonattainment area, are pushing for more restrictions and mandating restrictions against working the fields when winds reach a certain speed.

All farms and ranches activities in a nonattainment area are regulated under the Clean Air Act. The program we have is a mandatory program, and all producers must participate. Those who do not participate in our BMP program must obtain an individual air permit, similar to those required by utilities and factories. BMPs include practices such as tillage based on soil moisture, not working the fields in windy conditions, modifying equipment to prevent PM generation, speed limits on unpaved roads, planting wind breaks and permanent cover crops, just to name a few. All these activities place restrictions on farming operations and have economic consequences.

I can tell you that if I am required to park my tractor on windy days or when soil moisture is insufficient, it continues to cost me time and money in lost labor and productivity, or if I am required to have my employees drive 15 miles an hour on my farm dirt roads, it will greatly increase the time we must spend on these roads, taking time away from engaging in other more productive activities. Others with similar restrictions suffer similar economic hardships.

The fact that Administrator Jackson has determined to retain the current coarse PM_{10} standard for the next 5 years is very good news, but it only addresses one part of the dust problem facing rural America. H.R. 1633, by excluding naturally occurring nuisance farm dust from the Clean Air Act, unless the science is more conclusive, warrants it, addresses the other.

I thank the committee for your time and look forward to answering questions when it is appropriate.

[The prepared statement of Mr. Rogers follows:]

Summary Statement of Testimony of
Kevin Rogers, President, Arizona Farm Bureau Federation

The American Farm Bureau Federation supports H.R. 1633, the Farm Dust Regulation Prevention Act. The bill would exclude from federal regulation nuisance farm dust that occurs naturally in the course of normal farming activities.

Unlike other types of particulate matter that are regulated by the Environmental Protection Agency, farm dust is naturally occurring and is found in rural, rather than in urban, areas. Further, unlike other types of particulate matter where the links to health effects are well established, there is considerable uncertainty about whether or not farm dust adversely affects human health.

Regulation of naturally occurring dust restricts my normal farming activities, making it more costly for me to farm. Other farmers in my area have the same or similar restrictions and associated costs.

The bill makes common sense amendments to the Clean Air Act by excluding from regulation naturally occurring materials that are not readily subject to regulation and for which any regulatory benefits are uncertain. The bill would not prevent regulation of farm dust if the scientific data on adverse impacts to human health becomes more evident.

Statement of the American Farm Bureau Federation

TO THE

HOUSE COMMITTEE ON ENERGY AND COMMERCE

SUBCOMMITTEE ON ENERGY AND POWER

REGARDING: H.R. 1633, THE FARM DUST REGULATION PREVENTION ACT OF 2011

October 25, 2011

Presented by Kevin Rogers
President, Arizona Farm Bureau Federation
Testifying on Behalf of the American Farm Bureau Federation

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Mr. Chairman and Members of the Subcommittee, my name is Kevin Rogers. I am a fourth generation farmer and work over 7,000 acres of land in Arizona with other members of my family. We produce cotton, alfalfa, wheat, barley and corn. I am president of the Arizona Farm Bureau Federation. I also serve on the Department of Agriculture (USDA) Air Quality Task Force, which advises the Secretary of Agriculture on federal clean air policies that affect farmers.

I am pleased today to testify on behalf of the American Farm Bureau Federation in support of H.R. 1633, the *Farm Dust Regulation Prevention Act.*

My farm in Arizona lies in one of the worst areas for dust in the nation. Within the past couple of months, four huge, naturally-occurring dust clouds have risen from the desert and swept over the Phoenix and Tucson areas. A picture of the first of these clouds, one mile high and 50 miles wide, is attached to my statement. Just last week, a similar naturally occurring dust storm engulfed Lubbock, Texas. A picture of that dust cloud is also attached to my statement. This is the "dust" that EPA regulates under the coarse particulate matter (PM) national ambient air quality standard (NAAQS). While these storms do not happen every day, they occur often enough to cause readings from PM monitors to skyrocket many times above allowable levels.

For purposes of determining whether or not an area is in attainment, the Clean Air Act makes no distinction between readings resulting from factory emissions and those from dust storms. If it so chooses, the state may seek to exempt these dust storms as "exceptional events" under EPA policy so they do not count toward violations under the NAAQS, but the application process is cumbersome and expensive, and EPA must approve each application on a case by case basis. If the state were to determine that receiving exemptions for these dust storms would not change the area's non-attainment status, it may very well decide that it would not be worth the time and money to apply for exemption under the exceptional events policy.

H.R. 1633 would exempt dust storms and other types of "nuisance dust" (naturally occurring coarse particulate matter generated from agricultural activities) from federal regulation, unless such material would cause substantial adverse health impacts and the benefits of such regulation exceeded the costs. The bill rightly recognizes the great disparity in the coarse PM ambient air quality levels from one part of the country to another and from rural to urban areas. Current application of the Clean Air Act provides for one NAAQS for coarse PM, even though the data indicates that a single standard may not be appropriate. For example, the coarse PM levels on my farm in Arizona are significantly higher than coarse PM levels in most places in the United States. By providing for state or local regulation of rural "nuisance dust" from farming areas, the bill allows management flexibility to deal with unique local circumstances. At the same time, the bill would not preclude EPA regulation where substantial adverse health impacts can be shown. Appropriately, the bill makes common sense amendments to the Clean Air Act to prevent federal regulation of natural occurrences and naturally occurring dust from normal farming operations unless there is substantial evidence of adverse health impacts.

In order to illustrate why this bill is so important for rural communities, it may be helpful to describe for the Committee the legal context for EPA's actions, the different types of regulated particulate matter and the considerable differences between them, and also highlight some of the scientific uncertainties that EPA staff has identified in trying to determine whether dust might cause adverse health impacts.

1. Particulate Matter as a Criteria Pollutant

Particulate matter is listed as a "criteria pollutant" under the Clean Air Act. As such, it is subject to the establishment of a NAAQS. Under the Clean Air Act, EPA reviews NAAQS for criteria pollutants every five years. The NAAQS for particulate matter was last revisited in 2006, so EPA is undertaking its normal five-year review. We applaud the recent decision of the administrator to propose that the current standard for coarse PM be retained with no change, a decision that will help to prevent many other rural areas around the country from falling into non-attainment status for dust. Her action, however, will do nothing to help those of us in Maricopa and Pinal Counties in Arizona, the San Joaquin Valley in California, and several other rural areas throughout the Southwest and Plains states that are subject to the vagaries of naturally occurring dust storms and are regulated as a result.

2. Different Types of Particulate Matter

"Particulate matter" is broken down for EPA regulatory purposes into two distinct types.

- PM2.5 (fine particulate matter) – consists of particles less than 2.5 micrometers in size. PM2.5 is primarily emitted from power plants, industrial sources and motor vehicles – all man-made sources of emissions. PM2.5 is found mainly in urban areas and mainly in Eastern parts of the United States. PM2.5 consists of sulfate and nitrates, and results from chemical reactions in the atmosphere. There is a considerable body of scientific data on the health impacts of PM2.5.
- PM10-2.5 (coarse particulate matter) – consists of particles between 2.5 and 10 micrometers. PM10-2.5 is primarily found in rural areas. Most of the PM10-2.5 in rural areas consists of crustal and organic materials which are naturally occurring. While it can be disturbed by driving on unpaved rural roads, working farm fields with tractors, or

> moving livestock, it is also generated by naturally occurring conditions, such as blowing winds. Unlike the scientific evidence for PM2.5, the EPA readily admits that there are considerable uncertainties in the scientific knowledge of possible health impacts of this material. It is regulation of this naturally-occurring coarse PM raised in the performance of common everyday activities in rural areas that H.R. 1633 seeks to address.

The distinctions are important. It is clear that the focus of EPA NAAQS for particulate matter is the regulation of PM2.5 in urban areas, where there is a well-developed body of scientific data on the health impacts of PM2.5. By contrast, as indicated below, there are few relevant studies on the health effects of exposure to coarse PM. PM2.5 emissions are man-made and consist of sulfates, nitrates and other chemicals. Coarse PM is mostly naturally occurring in rural areas, and consists of dirt and organic matter. While PM2.5 is emitted into the ambient air, farm dust already exists and is raised into the ambient air.

3. The Scientific Data on the Possible Health Impacts of PM10-2.5 is "Uncertain" at Best

Unlike the scientific data regarding the health effects of PM2.5, the science dealing with possible health impacts of coarse PM (PM10-2.5) is far less developed. In its 2006 review, EPA "concluded that the standard should target protection toward urban areas, where the evidence of health effects from exposure to PM10-2.5 is strongest." (*Policy Assessment for the Review of the Particulate Matter National Ambient Air Quality Standards,* April 2011,p. 3-4). The 2011 EPA Policy Assessment notes that there are "important uncertainties and limitations" with the health data. (Id, p. ES-2).

Some of these "important uncertainties and limitations" include "those associated with the air quality estimates used in PM10-2.5 epidemiologic studies; the extent to which PM10-2.5 air quality concentrations reflect exposures to PM10-2.5; the extent to which PM10-2.5 itself is responsible for health effects reported in epidemiologic studies; and the extent to which the chemical and/or biological composition of PM10-2.5 affects particle toxicity." (p. ES-2)

The Policy Assessment also says: "The ISA (Integrated Science Assessment) concludes that an important uncertainty in the PM10-2.5 epidemiological literature is related to the air quality estimates used in these studies. Specifically, the ISA concludes that there is greater error in estimating ambient exposures to PM10-2.5 than to PM2.5 and that such uncertainty is a particularly relevant consideration when interpreting PM10-2.5 epidemiological studies. Contributing to this uncertainty is the relatively limited spatial coverage provided by the existing PM10-2.5 monitoring network." (id., p 3-16)

The health evidence is in fact so weak that EPA could not even perform a quantitative risk assessment for coarse PM during this review cycle. As the agency explains:

> "Our approach relies most heavily on the health evidence, primarily the epidemiological evidence, assessed in the ISA (US EPA, 2009a) and on available PM air quality information. As discussed in more detail in the *Quantitative Health Risk Assessment for Particulate Matter – Final* (RA, US EPA, 2010a), we have not conducted a quantitative assessment of health risks associated with PM10-2.5. Staff concluded that limitations in the monitoring network and in the health studies that rely on that monitoring network, which would be the basis for estimating PM10-2.5 health risks, would introduce significant uncertainty into a PM10-2.5 risk assessment such that the risk estimates generated would be of limited value in informing review of the standard. Therefore, staff concluded in the RA that a quantitative risk assessment for PM10-2.5 is not supportable at this time (US EPA, 2010a, p. 2-6)." (P. 3-6)

EPA also readily admits that it has little or no data on health impacts in rural areas. It states that "most PM10-2.5 epidemiological studies have been conducted in urban locations in the U.S., Canada, and Europe while a small number of studies have examined the health impacts of dust storm events." (id., 3-14) The applicability of these studies is limited. EPA staff concludes, "Effect estimates for PM10-2.5 were larger in the eastern U.S. than the western U.S., though this difference was not statistically significant (Peng et al., 2008)." (id. P. 3-13)

Given these and other factors, EPA concludes, "Although new studies have become available since the last review and have expanded our understanding of the association between PM10-2.5 and adverse health effects (see above and U.S. EPA, 2009a, Chapter 6), important uncertainties remain." (id, p. 3-15)

The EPA cannot even state with any certainty that coarse PM causes adverse human health impacts. The Policy Assessment describes the EPA scientific scale used to determine the confidence in the health effects data. The scale ranges from causal relationship (the most confident), likely to be a causal relationship, suggestive of a causal relationship, and inadequate to infer a causal relationship (least confident). For coarse PM, the EPA concludes, "that the existing evidence is suggestive of a causal relationship between short-term PM10-2.5 exposures and mortality, cardiovascular effects, and respiratory effects. In contrast, the ISA concludes that available evidence is *inadequate to infer a causal relationship* between long-term PM10-2.5 exposures and various health effects ." (id, p. 3-9).

Based on this analysis, EPA "staff concludes that it would be appropriate to consider either retaining or revising the current standard, depending on the relative weight placed on the evidence supporting associations with PM10-2.5 and the uncertainties and limitations in this evidence." (id. p. ES-2). That is consistent with the conclusion in the draft Policy Statement that it is "reasonable to conclude that the available evidence does not provide a basis for reaching a fundamentally different conclusion from the one reached in the previous review."

The EPA thus concludes its analysis of the very uncertain science on coarse PM by stating that the evidence warrants either retaining the current standard or revising it. Many rural areas in the middle and western parts of the country already have difficulty meeting the current NAAQS of 150 ug/m3. Revising the standard will likely result in many more rural areas failing to meet the new standard, thus causing those areas to go into non-attainment and subjecting them to the significant costs that result from non-attainment status. Conversely, revising the standard will likely not affect urban areas either way.

Given the EPA conclusion, and the increase in non-attainment in rural areas that is likely to occur as a result of a revision of the NAAQS, it is common sense to retain the current standard and not revise it, as the administrator announced.

4. There are Economic Impacts Associated with being in Non-Attainment

The area where I farm near Phoenix has one of the highest coarse PM levels in the United States, a distinction that we share with the San Joaquin Valley in southern California. It is arid and windy, similar to many other rural areas in the West, Southwest and Plains. The area where I farm cannot even meet the current coarse PM standard, and we have been in serious non-attainment for several years.

Once an area is designated as non-attainment, the governing authority must develop a state implementation plan (SIP) whose purpose is to bring the area into compliance within five years. The SIP may include regulations and restrictions on activities designed to reduce ambient air levels to attainment levels. In the absence of a SIP, the EPA may develop a Federal Implementation Plan (FIP) to bring the area into attainment.

The recent announcement by Administrator Jackson that EPA will propose the retention of the current coarse PM standard does not mean that farm dust is not or will not be regulated under the Clean Air Act. For those of us in coarse PM non-attainment areas, our activities are already regulated and will continue to be regulated unless H.R. 1633 is passed.

The Phoenix metropolitan area has not been in compliance with the coarse PM NAAQS since the Clean Air Act was amended in 1990. Since 1996, it has been in serious non-attainment.

Recognizing the need to become part of the solution, Arizona Farm Bureau Federation became proactive in seeking ways to help bring the area into attainment. The state developed the Governor's Agricultural Best Management Practices Committee to develop a general coarse PM permit to include controls on agricultural practices. The committee developed best management practices (BMP) in three different categories, and farmers were required to adopt one BMP in each category. The state law implementing this program was recently amended to require two BMPs from each category. All farmers and ranchers in the non-attainment areas are regulated for farm dust under the Clean Air Act. Farmers and ranchers who choose and accept to perform BMPs are covered under a general air permit. Those farmers and ranchers who do not participate in the BMP program must obtain individual air permits similar to those required of utilities and factories.

BMPs include practices such as: tillage based on soil moisture, not working fields in windy conditions, modifying equipment to prevent PM generation, speed limits on unpaved roads, planting windbreaks and permanent cover crops, to name a few.

Within the past few years, we have seen this program go from requiring one BMP per category to two for participating producers. EPA and the state say that more is needed. EPA is currently pushing for mandatory restrictions against working in fields when the wind reaches a certain speed.

All of these activities have economic consequences attached to them and place restrictions on farming operations. We are unaware of any general economic studies on the impacts of such restrictions. However, I can tell you that if I am required to park my tractor on windy days or when soil moisture is insufficient it will cost me time and money in lost labor and productivity. If I or my employees are limited to driving 15 miles per hour on county roads, it will greatly increase the time we must spend on these roads, taking time away from engaging in other more productive activities. Others with similar restrictions will suffer similar economic consequences.

But even these BMPs and any mandatory restrictions cannot guarantee that an area will be brought into attainment. EPA, the state, farmers and ranchers cannot control the winds, rainfall or naturally occurring dust storms. Any positive results that might be achieved could be swept away by another giant dust storm. The fact that farm dust is naturally occurring and not from man made emissions reduces the effectiveness of any regulatory program.

5. The Lack of PM10 Monitors in Rural Areas Will Not Necessarily Curtail Enforcement

EPA acknowledges that there are relatively few monitors in rural areas for coarse PM, a factor that contributes to the considerable scientific uncertainty regarding health effects. Some argue that this factor also means that a coarse PM NAAQS would not be enforced in rural areas where there are no monitors.

We have learned first-hand that this is not the case. Citizen groups often place monitors in strategic places (e.g., near feedlots) and take readings and report them to the air quality authority. Once placed, such monitors become difficult to remove. One such group placed a monitor near one of our local feedlots and took readings. The monitor is now one of the permanent monitors in the area.

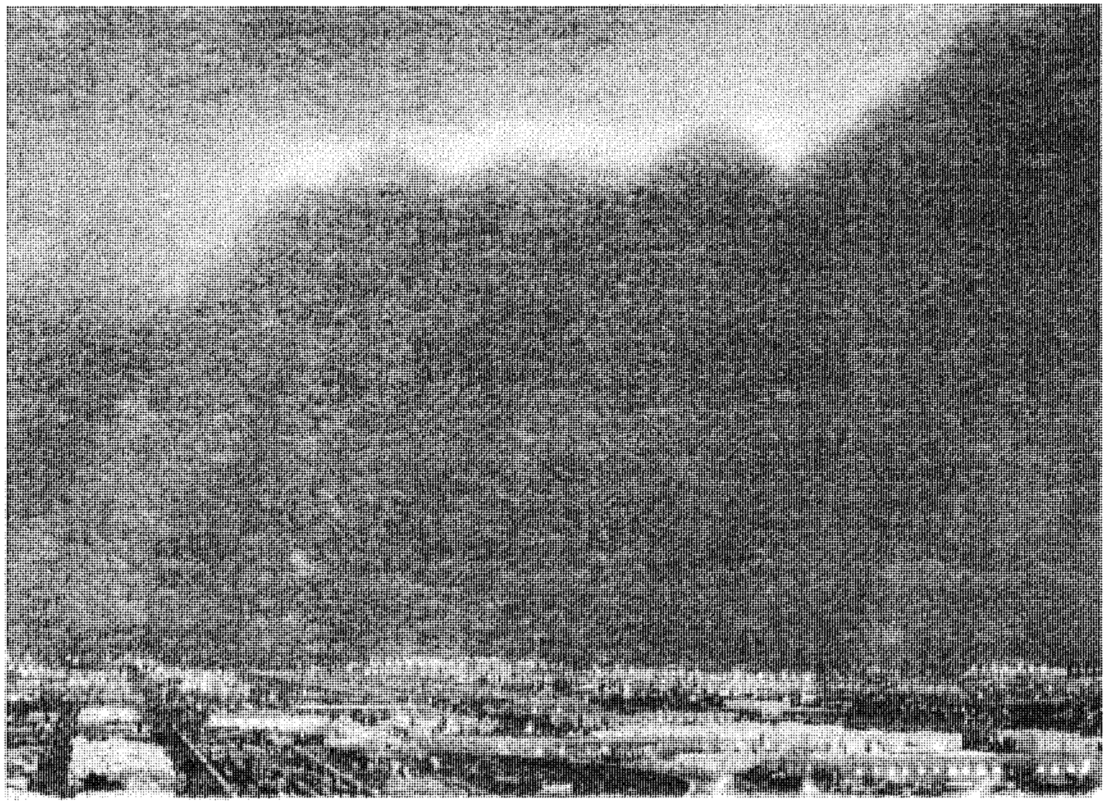
6. Conclusion

H.R. 1633 provides a reasonable and common sense approach to control ambient air quality for coarse particulate matter in a way that recognizes the natural occurrence of farm dust while at the same time recognizing the public health mandate of the Clean Air Act. By excluding "nuisance dust" from regulation, the bill allows EPA to continue regulating man-made emissions of particulate matter, while at the same time not trying to regulate natural occurrences. The exclusion focuses EPA attention on things that EPA can control, instead of trying to regulate Arizona dust storms or arid conditions in rural areas.

The bill does not roll back any EPA protections afforded under the Clean Air Act. Rather, it reinforces the idea, consistently advanced by EPA, that regulatory decisions should be based on sound science. The record is clear that the scientific data relating possible health effects of coarse PM is "highly uncertain." The bill provides the necessary flexibility for EPA to step in and regulate if the science becomes more conclusive that naturally occurring farm dust causes adverse health effects.

The fact that Administrator Jackson has determined to retain the current coarse PM standard for the next five years is good news, but it only addresses one aspect of the problem facing rural America. Passage of H.R. 1633, and its exclusion of "naturally occurring 'nuisance' farm dust" from regulation under the Clean Air Act unless the science more conclusively warrants it, addresses the other part of the issue.

PHOENIX DUST STORM JULY 5 2011



LUBBOCK, TEXAS OCTOBER 17, 2011

Mr. WHITFIELD. Thank you, Mr. Rogers.

Mr. Lien, you are recognized for 5 minutes.

STATEMENT OF PETE LIEN

Mr. LIEN. Chairman Whitfield and members of the subcommittee, thank you for inviting me to testify on behalf of the National Stone, Sand and Gravel Association at this hearing on the Farm Dust Regulation Prevention Act, which would prevent the harmful effects of EPA's regulations of nuisance dust.

My name is Pete Lien. I am President of Pete Lien and Sons of South Dakota, which was started in 1944 by my grandfather. Representative Noem is my Congresswoman, and I am pleased to express NSSGA's support of her legislation.

My association's members produce more than 90 percent of the crushed stone and 70 percent of the sand and gravel consumed annually in the United States. There are more than 10,000 construction aggregate operations nationwide. Aggregates are the chief ingredients in asphalt, concrete and used in nearly all residential, commercial and industrial building construction and in most public works projects including roads, highways, bridges, dams, airports, water and sewage treatment plants, and tunnels

The aggregates industry has experienced the most severe recession in its history. Production of aggregates has gone from 3 billion metric tons valued at $21 billion in 2006 to 2 billion metric tons valued at $17 billion in 2010, a drop of $4 billion. Of particular importance to this hearing is 70 percent of NSSGA members are considered small businesses and many are located in rural area.

NSSGA members are committed to full compliance with all pertinent environmental laws and regulations and emphasize sustainable practices. I am proud to say my own family business has reserves and plans for 200 years of operation into the future. We have also won numerous awards including a letter of commendation from the Bureau of Land Management for reclamation before reclamation was even required by law. We are the winner of the NSSGA's Environmental Steward Award, and the only quarry ever to win EPA's Earth Care Award, which was presented by Robert Redford.

Like agriculture, resource-based industries such as aggregate producers have limited opportunities to reduce dust. To meet the current standard for dust, or PM_{10}, aggregate facilities are required to have permits with State environmental agencies which seem to control dust by limiting production and requiring control technologies to limit dust on crushers and other equipment and road maintenance. Some dust is generated at an aggregates operation by crushing stone and truck traffic. However, most of it is from uncontrollable sources such as from roads and windblown dust, particularly in our rural areas.

There is no practical way to control natural dust sources in the West and Southwest and reduce the PM_{10} ambient air concentration. Nevertheless, EPA continues to promulgate unworkable standards that hurt job growth without any health benefits. For example, in Utah, if EPA would have reduced the standard by as much as a half, 23 of the 29 counties would go into nonattainment, which would result in extreme limits on production and/or facility closures and further threaten much-needed highway funding.

One NSSGA member has calculated that in order to meet a lowered standard as contemplated by EPA, a typical facility would have to reduce production by more than two-thirds. This would substantially change the business model and lead to plant closure and the loss of 50 jobs or dramatic increase in the price of the product. Given the over 10,000 operations in the United States and virtually every Congressional district is home to an aggregates operation, this could result in significant job losses.

Taken further, a cut in aggregates production would lead to a shortage of stone, concrete and asphalt for State and Federal road building and repair, commercial and residential construction, which in turn would cause an increase in the price of materials for those projects ranging from 80 percent to 180 percent and further suppress employment in the construction industry. Given that infrastructure investment is essential to economic recovery and growth, any change in the PM_{10} standard would impose an additional burden on the aggregates industry that is unwarranted and would adversely impact aggregate supply and vitally important American jobs.

NSSGA appreciates this opportunity to speak on the devastating effects of over-regulating nuisance dust on the aggregates industry.

Thank you, Mr. Chairman. I will be glad to respond to questions.

[The prepared statement of Mr. Lien follows:]

SUMMARY OF TESTIMONY OF PETE LIEN ON BEHALF OF THE NATIONAL STONE, SAND & GRAVEL ASSOCIATION BEFORE THE SUBCOMMITTEE ON ENERGY AND POWER
HOUSE COMMITTEE ON ENERGY AND COMMERCE
HEARING ON
FARM DUST REGULATION PREVENTION ACT
October 25, 2011

- Like agriculture, resource-based industries such as aggregates production have limited opportunities to reduce dust.

- Aggregates are used in nearly all residential, commercial, and industrial building construction and in most public works projects.

- To meet the current standard for dust or PM10 aggregates facilities are required to have permits with state environmental agencies which seek to control dust by limiting production and requiring control technologies to limit dust on crushers and other equipment and road maintenance. Some dust is generated at an aggregate operation by crushing stone and truck traffic; however, most is from uncontrollable sources such as from roads and windblown dust, particularly in rural areas.

- There is no practical way to control natural dust sources in the West and Southwest and reduce the PM10 ambient air concentrations; because of this, NSSGA supports the *Farm Dust Regulation Prevention Act*.

- One NSSGA member has calculated that in order to meet a reduced standard, a typical facility would have to reduce production by more than two-thirds. This would substantially change the business model, and lead to plant closure (and the loss of 50 jobs) or a dramatic increase in the price of product. Given that there are over 10,000 operations in the U.S., and virtually every congressional district is home to an aggregates operation, this could result in significant job losses.

- Taken further, a cut in aggregate production would lead to a shortage of stone, concrete and asphalt for state and federal road building/repair, commercial and residential construction, which in turn would cause an increase in the price of stone for these projects ranging from 80 percent to 180 percent and further suppress employment in the construction industries. Given that infrastructure investment is essential to economic recovery and growth, this additional burden on the aggregates industry comes at a time when both aggregate supply and jobs are of vital importance.

NATIONAL STONE, SAND & GRAVEL ASSOCIATION

Natural building blocks for quality of life

TESTIMONY

OF

PETE LIEN

ON BEHALF OF THE

NATIONAL STONE, SAND & GRAVEL ASSOCIATION

BEFORE THE

SUBCOMMITTEE ON ENERGY AND POWER

HOUSE COMMITTEE ON ENERGY AND COMMERCE

HEARING ON

FARM DUST REGULATION PREVENTION ACT

October 25, 2011

1605 KING STREET ▪ ALEXANDRIA, VA 22314
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Thank you Chairman Whitfield, Ranking Member Rush, and Members of the Subcommittee for inviting me to testify on behalf of the National Stone, Sand & Gravel Association (NSSGA) at this hearing on the *Farm Dust Regulation Prevention Act* (H.R. 1633) which would prevent the harmful effects of EPA's regulation of nuisance dust on the aggregates industry.

I am Pete Lien, President of Peter Lien & Sons, Inc., headquartered in Rapid City, South Dakota, and I serve on the NSSGA's Board of Directors.

Regulating coarse particulate matter is an issue of utmost concern to the aggregates industry; an industry which involves extraction of a foundational material essential to the built environment. Representative Noem is my congresswoman and I am pleased to express NSSGA's support for her legislation.

Aggregates Industry

The National Stone, Stand & Gravel Association represents the crushed stone, sand and gravel – or construction aggregates – industries. Its member companies produce more than 90 percent of the crushed stone and 70 percent of the sand and gravel consumed annually in the United States. There are more than 10,000 construction aggregates operations nationwide.

Aggregates are used in nearly all residential, commercial, and industrial building construction and in most public works projects, including roads, highways, bridges, dams, airports, water and sewage treatment plants, and tunnels. While Americans take for granted this essential natural material, aggregates are essential to the built environment. Aggregates make up 94 percent of asphalt and 80 percent of concrete. About 400 tons are used in an average home (not counting the required subdivision work) and 38,000 tons are used to construct one mile of highway. Without aggregates, we would be sitting and driving on dirt.

Aggregates are a high volume, low cost product. Due to high product transportation costs, proximity to market is critical; thus, 70 percent of our nation's counties are home to an aggregates operation. Sales of natural aggregates generate nearly $40 billion annually for the U.S. economy. When combined with related industries, such as cement, concrete and construction equipment and supplies, the transportation construction industry generates more than $200 billion in economic activity every year.

Through its economic, social and environmental contributions, aggregates production helps create sustainable communities and is essential to the quality of life American's enjoy. Yet despite the large amounts of aggregates used in all kinds of construction the aggregates industry has experienced the most severe recession in its history. Production of aggregates in the U.S. has gone from over 3 billion metric tons in 2006 valued at $21 billion to 2 billion metric tons in 2010 at a value of approximately $17 billion, a 4 billion decrease. This production decrease is on top of decreases in 2007, 2008 and 2009. Many aggregates companies have had to lay off employees for the first time in their history. Of particular relevance to this hearing, 70 percent of NSSGA members are considered small businesses. Because so much of the aggregates produced go towards public infrastructure projects like roads, bridges and water treatment plants, increases in the cost of aggregates, such as those from overregulation, are borne by taxpayers.

Pete Lien & Sons, Inc. Background

In 1944, my grandfather started a small quarry near Rapid City, South Dakota, which helped build the nearby air base and later the interstate highway system. We now have 450 employees at 30 sites in 3 states, building the communities we live in by supplying construction materials such as rock, sand, gravel, concrete, and lime.

Industry's Demonstrated Commitment to the Environment and to Sustainability

NSSGA members long ago committed to Guiding Principles for environmental compliance and sustainability, and recognize that the Earth's resources, upon which all of life depends, are finite and that wise environmental stewardship is necessary today to preserve the potential for a quality life for future generations. NSSGA members are committed to full compliance with all pertinent environmental law and regulations, and emphasize sustainable practices.

Since it is the most fundamental component of construction, aggregates are employed in any road or building project, as well as for many environmental purposes. Environmental uses include: erosion control alongside roads, dams, shorelines and bridges, filtration for storm water as well as water and sewage treatment, as 80-some percent of the material used to construct the systems which convey water to be treated as well as clean water, flue gas desulferization in power plant and industrial air emissions, reclamation and habitat creation, and neutralization of acidic discharges.

Regulatory Burden is a Challenge

While there are many environmental benefits to using stone, sand and gravel the number and impact of new regulatory proposals on top of existing heavily regulated operations seem to continue unabated. NSSGA believes that, at this challenging time for our Nation's economy, government should consider the cumulative impact of the costs of compliance before more rules are imposed on industry. Federal regulatory decision-makers must wield their authority with care, and should base regulatory decisions on published, peer -reviewed assessments of risk. We are wary of rules that create more stringent or even unattainable standards without sufficient statistical, scientific or analytical justification.

Quarry Operations and Dust

On behalf of NSSGA, I can attest to our relief at the EPA Administrator's recent decision to not go forward with a proposal to reduce the NAAQS for PM 10. Such a rule would have been devastating not only to my company and our industry, but also to most of the Midwestern and Western states such as South Dakota where we're headquartered.

Further I applaud the responsible behavior on the part of this subcommittee to have this hearing so that the issues that must be considered in law and rulemaking are collected for the record and as a tutorial for the future.

Like agriculture, resource-based industries such as aggregates production have limited opportunities to reduce dust. Most aggregates operations would have to cut production to meet a reduced standard. Dust is generated at an aggregates operation by crushing, screening, conveying, stockpile activity and truck traffic on paved and unpaved roadways. Maximum aggregates production is achieved, and compliance with the current dust standard is maintained, by aggregates producers already using Best Available Control Technologies on their processing plants such as wet suppression, dry collection and enclosures, and properly maintaining roadways. However, these sources are only a small fraction of dust present at a typical aggregates site; most is from uncontrollable sources such as from roads and windblown dust, particularly in rural areas.

Current Regulatory Requirements

To meet the current National Ambient Air Quality Standard for Coarse Particulate Matter (PM 10), aggregates facilities are required to have permits with state environmental agencies which seek to control dust by limiting production and requiring control technologies such as water sprays, dust collectors or enclosures to limit dust on crushers and other equipment and road maintenance. Quarries demonstrate compliance via air dispersion modeling or monitoring.

Many aggregates facilities struggle to meet the current standard, and changes in operations, even to improve efficiency, are often compromised. For example, one facility wanted to upgrade its operations to increase efficiency and use less fuel. In order to relocate equipment, the changes in the modeled dust emissions would have led to changes in the facility permit. In order to approve the changes in the permit, the state agency required a long road to be paved, which would have cost five hundred thousand dollars. This was even more impractical given that the shape of a quarry changes as the material is mined. Because of this regulatory burden, the changes to plant operations were not made.

Impacts of Dust Over-Regulation

We are happy with the recent decision by Lisa Jackson to retain the current standard at present. However, a future reduction in the standard would be difficult, if not impossible, to meet for mining, farming, ranching, transportation and other sources of coarse crustal fugitive dust emissions found in parts of the West, Southwest, Midwest and East. The only way to meet a lower fence-line NAAQS, via air dispersion modeling or air monitoring, is to limit annual production in the processing plant and/or the number of trucks traveling on roadways within the property, thus limiting sales to customers (restriction of trade). Limiting aggregates production and sales would create additional job loss and economic strain.

The recent Coarse Particle Coalition study confirms that a reduction in the standard would cause widespread reductions in production and employment at facilities throughout agricultural and resource-based industries. The study showed a lower PM NAAQS would leave more than half of the U.S. vulnerable to violating the standard and put many areas out of conformity with their State Implementation Plans and thus place highway funding in jeopardy.

The dominance of natural dust sources (i.e. windblown dust from arid lands) and municipal unpaved roads is the main reason that some areas in the West and Southwest have been in continual non-attainment with PM10 standards since the late 1980s. There is no practical way to control these sources and reduce the PM10 ambient air concentrations; nevertheless EPA continues to promulgate unworkable standards that hurt job growth without health benefits.

In Utah, a reduction in the current standard would result in 23 of the 29 counties exceeding the new standard. Although best management practices and strict requirement are already in place, this would result in extreme limits on production and/or facility closures. This would not only impact the jobs at the aggregates operations, but many other infrastructure and construction related jobs as well.

One NSSGA member has calculated that in order to meet a reduced standard, a typical facility would have to reduce production by more than two-thirds. This would substantially change the business model, and lead to plant closure (and the loss of 50 jobs) or a dramatic increase in the price of product. Given that there are over 10,000 operations in the U.S., and virtually every congressional district is home to an aggregates operation, this could result in significant job losses. With the anticipated PM10 NAAQS, NSSGA member companies will have extreme difficulty in expanding existing facilities or opening new ones to meet construction demands for aggregates.

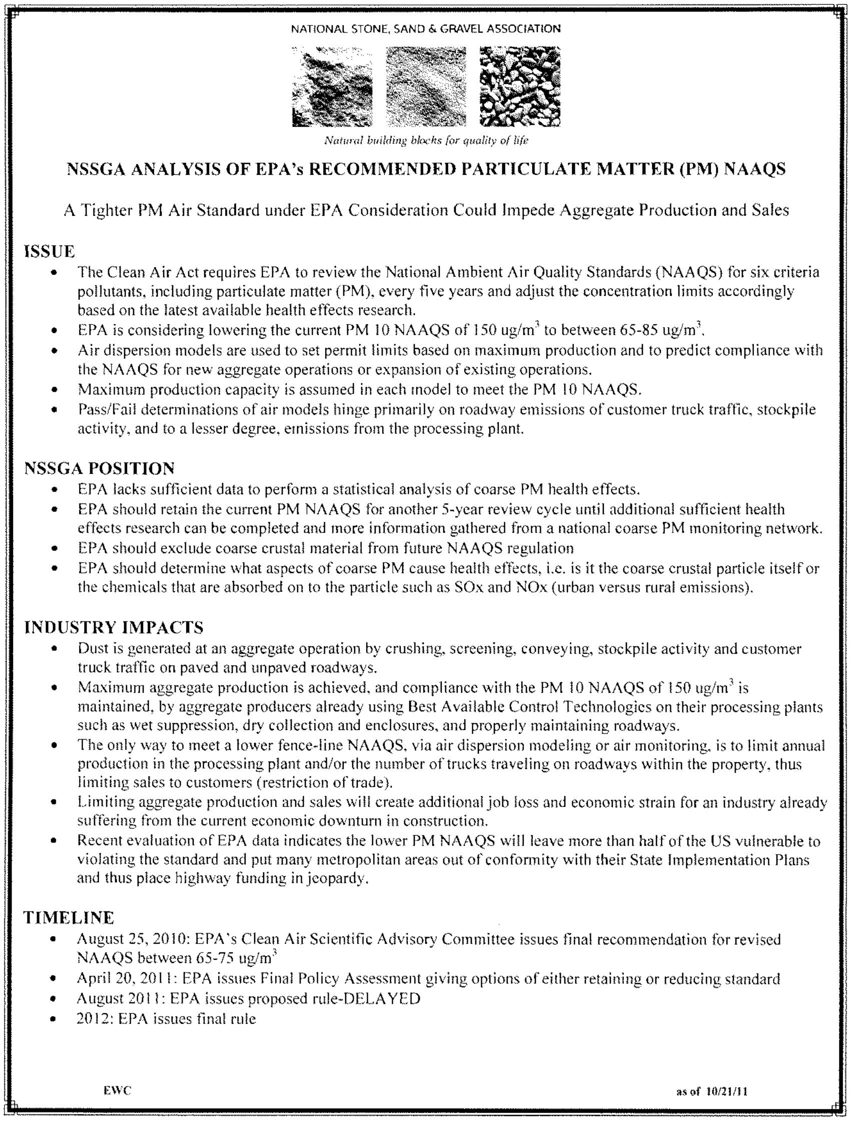
Taken further, a cut in aggregates production would lead to a shortage of stone, concrete and asphalt for state and federal road building/repair, commercial and residential construction, which in turn would cause an increase in the price of stone for these projects ranging from 80 percent to 180 percent and further suppress employment in the construction industries. Given that infrastructure investment is essential to economic recovery and growth, this additional burden on the aggregates industry comes at a time when both aggregates supply and jobs are of vital importance.

The Clean Air Act requires EPA to set National Ambient Air Quality Standards to protect public health. However, in evaluating health effects of possible changes in the Standards, EPA has failed to consider the very significant adverse health effects caused by forced unemployment.

Conclusion

NSSGA appreciates this opportunity to speak on the natural dust levels in the ambient air that must be considered in endeavoring to lower the currently strict PM10 NAAQS. Lowering the PM10 NAAQS would have had devastating effects of unjustifiable overregulation of nuisance dust to the aggregates industry, which of course extends to the construction and agricultural sectors among many others. On behalf of NSSGA, we are relieved at the recent announcement by EPA that they will not proceed on a reduction of current PM10 levels, and we are grateful for the work of this subcommittee toward that end. Thank you, Mr. Chairman, and I will be happy to respond to any questions.

Attachments



NATIONAL STONE, SAND & GRAVEL ASSOCIATION

Natural building blocks for quality of life

NSSGA ANALYSIS OF EPA's RECOMMENDED PARTICULATE MATTER (PM) NAAQS

A Tighter PM Air Standard under EPA Consideration Could Impede Aggregate Production and Sales

ISSUE

- The Clean Air Act requires EPA to review the National Ambient Air Quality Standards (NAAQS) for six criteria pollutants, including particulate matter (PM), every five years and adjust the concentration limits accordingly based on the latest available health effects research.
- EPA is considering lowering the current PM 10 NAAQS of 150 ug/m^3 to between 65-85 ug/m^3.
- Air dispersion models are used to set permit limits based on maximum production and to predict compliance with the NAAQS for new aggregate operations or expansion of existing operations.
- Maximum production capacity is assumed in each model to meet the PM 10 NAAQS.
- Pass/Fail determinations of air models hinge primarily on roadway emissions of customer truck traffic, stockpile activity, and to a lesser degree, emissions from the processing plant.

NSSGA POSITION

- EPA lacks sufficient data to perform a statistical analysis of coarse PM health effects.
- EPA should retain the current PM NAAQS for another 5-year review cycle until additional sufficient health effects research can be completed and more information gathered from a national coarse PM monitoring network.
- EPA should exclude coarse crustal material from future NAAQS regulation
- EPA should determine what aspects of coarse PM cause health effects, i.e. is it the coarse crustal particle itself or the chemicals that are absorbed on to the particle such as SOx and NOx (urban versus rural emissions).

INDUSTRY IMPACTS

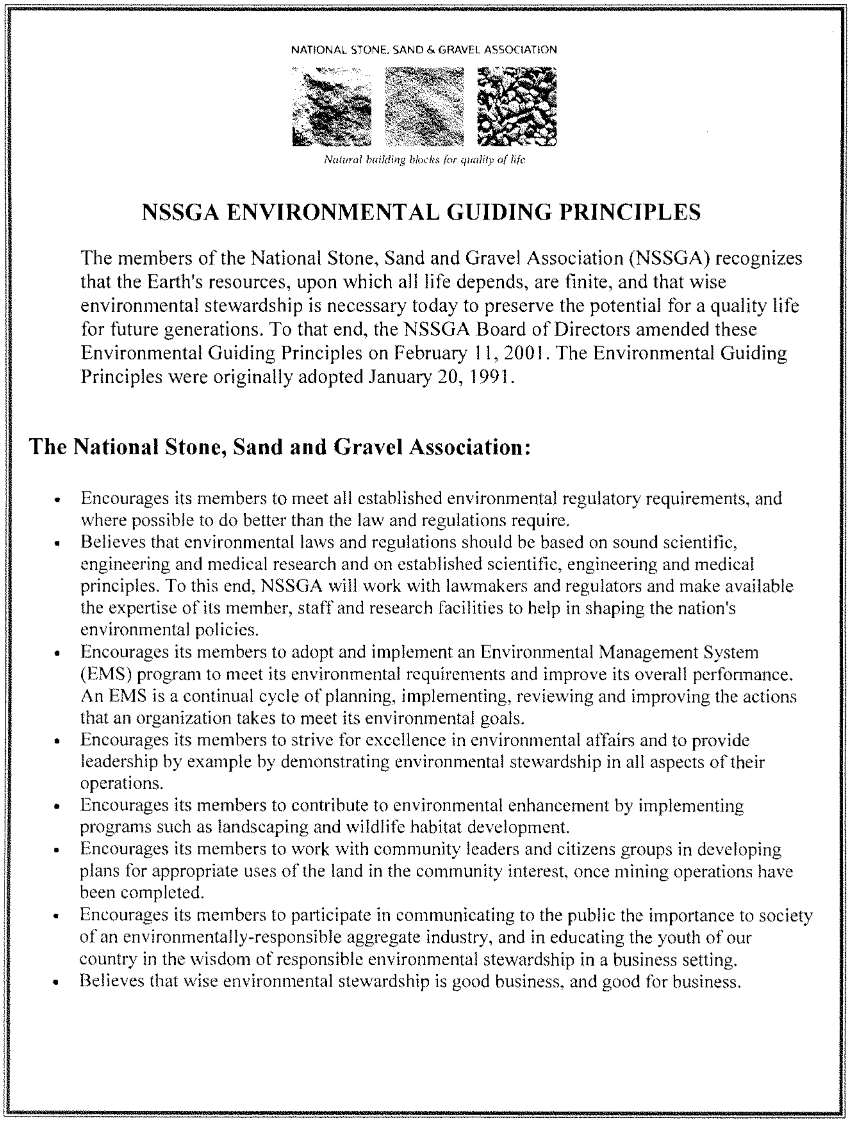
- Dust is generated at an aggregate operation by crushing, screening, conveying, stockpile activity and customer truck traffic on paved and unpaved roadways.
- Maximum aggregate production is achieved, and compliance with the PM 10 NAAQS of 150 ug/m^3 is maintained, by aggregate producers already using Best Available Control Technologies on their processing plants such as wet suppression, dry collection and enclosures, and properly maintaining roadways.
- The only way to meet a lower fence-line NAAQS, via air dispersion modeling or air monitoring, is to limit annual production in the processing plant and/or the number of trucks traveling on roadways within the property, thus limiting sales to customers (restriction of trade).
- Limiting aggregate production and sales will create additional job loss and economic strain for an industry already suffering from the current economic downturn in construction.
- Recent evaluation of EPA data indicates the lower PM NAAQS will leave more than half of the US vulnerable to violating the standard and put many metropolitan areas out of conformity with their State Implementation Plans and thus place highway funding in jeopardy.

TIMELINE

- August 25, 2010: EPA's Clean Air Scientific Advisory Committee issues final recommendation for revised NAAQS between 65-75 ug/m^3
- April 20, 2011: EPA issues Final Policy Assessment giving options of either retaining or reducing standard
- August 2011: EPA issues proposed rule-DELAYED
- 2012: EPA issues final rule

EWC

as of 10/21/11



NATIONAL STONE, SAND & GRAVEL ASSOCIATION

Natural building blocks for quality of life

NSSGA ENVIRONMENTAL GUIDING PRINCIPLES

The members of the National Stone, Sand and Gravel Association (NSSGA) recognizes that the Earth's resources, upon which all life depends, are finite, and that wise environmental stewardship is necessary today to preserve the potential for a quality life for future generations. To that end, the NSSGA Board of Directors amended these Environmental Guiding Principles on February 11, 2001. The Environmental Guiding Principles were originally adopted January 20, 1991.

The National Stone, Sand and Gravel Association:

- Encourages its members to meet all established environmental regulatory requirements, and where possible to do better than the law and regulations require.
- Believes that environmental laws and regulations should be based on sound scientific, engineering and medical research and on established scientific, engineering and medical principles. To this end, NSSGA will work with lawmakers and regulators and make available the expertise of its member, staff and research facilities to help in shaping the nation's environmental policies.
- Encourages its members to adopt and implement an Environmental Management System (EMS) program to meet its environmental requirements and improve its overall performance. An EMS is a continual cycle of planning, implementing, reviewing and improving the actions that an organization takes to meet its environmental goals.
- Encourages its members to strive for excellence in environmental affairs and to provide leadership by example by demonstrating environmental stewardship in all aspects of their operations.
- Encourages its members to contribute to environmental enhancement by implementing programs such as landscaping and wildlife habitat development.
- Encourages its members to work with community leaders and citizens groups in developing plans for appropriate uses of the land in the community interest, once mining operations have been completed.
- Encourages its members to participate in communicating to the public the importance to society of an environmentally-responsible aggregate industry, and in educating the youth of our country in the wisdom of responsible environmental stewardship in a business setting.
- Believes that wise environmental stewardship is good business, and good for business.

NATIONAL STONE, SAND & GRAVEL ASSOCIATION

Natural building blocks for quality of life

NSSGA SUSTAINABLITY GUIDING PRINCIPLES

The members of the National Stone, Sand & Gravel Association (NSSGA) identify sustainability as a business approach that integrates environmental stewardship, social responsibility and economic prosperity to ensure the long-term supply of aggregate materials to society. NSSGA recognizes that sustainable practices are necessary today to preserve the potential for a quality life for future generations. The long-term viability of the aggregates industry is dependent on obtaining and maintaining a social license to operate. NSSGA member companies will enhance their ability to obtain these licenses and to compete effectively when applying sustainability guidelines.

Overarching Practices:

- NSSGA members sustain the communities in which we operate by providing raw materials as natural building blocks for quality of life.
- We are conscious of the need to provide economic, social and environmental value for future generations, and the communities in which we operate.
- We demonstrate a strong and unwavering commitment to safety, health and the environment at our operations.
- We work with appropriate government bodies to establish effective, responsible and balanced laws and other requirements based on sound science.
- We encourage life cycle re-use of products during manufacturing and post-consumer use.
- We maintain adequate aggregate resources in locations that minimize the life cycle impacts of the resource's extraction, delivery and use.
- We encourage proper land use development and planning within communities to ensure long-term aggregate resource availability.
- We adhere to the highest ethical business practices and transparency in all aspects of our operations.
- We recognize that profitability is essential to a sustainable industry and its continued ability to contribute to communities.

Our Members are Encouraged to:

- Develop a site-specific plan for post-mining land use and/or reclamation that engages stakeholders in planning for future needs and interests.
- Plan for the prevention and/or minimization of environmental impacts.
- Adopt and implement an Environmental Management System program to properly manage potential
- Pursue new technologies and practices to improve the operational, safety, health and environmental efficiency of our operations.
- Invest in the personal and professional development of employees to ensure a strong workforce into the future.
- Ensure that employees are treated in a respectful and positive manner, and provide them with competitive compensation programs consistent with performance and industry practice.
- Identify, control and/or eliminate risks associated with occupational injuries and illnesses.
- Encourage employees and contractors to interact responsibly within the community in which we operate and serve.
- Work in partnerships to promote beneficial post-mining land use, including industrial, commercial, and residential and community development, agricultural production, and wildlife conservation, habitat creation and restoration.

Mr. WHITFIELD. Thank you.

And Mr. Blase, we appreciate your being with us. I failed to state that you are representing the Coarse Particulate Matter Coalition. You are recognized for 5 minutes.

STATEMENT OF KURT E. BLASE

Mr. BLASE. Thank you. Good morning, Chairman Whitfield, Ranking Member Rush and members of the subcommittee. Thanks for inviting me to testify this morning. My name is Kurt Blase, and I am Counsel to the Coarse Particulate Matter Coalition.

The coalition is an organization of industry groups with an interest in scientifically sound regulation of coarse PM and air. The current members of the coalition are listed in my written testimony.

The past two reviews of the National Ambient Air Quality Standard for PM_{10} have focused increasingly on road dust as a potential public health threat. The theory has been that dust by urban roadsides can become contaminated by other materials that render them more toxic. In contrast, dust composed primarily of crustal material has been reported to be harmful only at ambient levels much higher than the current Federal standard.

Our coalition consistently has supported retention of the current PM_{10} standard while exploring avenues of relief for natural dust emissions. The current standard limits production and therefore employment by imposing stringent dust emission limits in permits and State plans. Compliance with the current standard is very difficult to maintain at our operations. We have been surprised by recent contentions that the regulation of dust is inconsequential.

There is one extra point I would like to make here with respect to permits. We have talked a lot this morning about the effect of nonattainment areas where the monitors are placed. A couple of things there. I mean, even if you are in an unmonitored area now, if the feds change their monitoring criteria, their siting criteria, you can be monitored. If a private party such as the Sierra Club story that Mr. Hurt told wants to come and monitor you, they can do that. And more importantly, for our group, really nonattainment and monitoring is almost not an issue because we have to have permits and our permits have to show attainment of the standard at the fence line regardless of the attainment status of the area in concern. I mean, it is these permits even more than the nonattainment or attainment designation that are limiting our ability to produce right now on the basis of this standard.

It is widely recognized that coarse PM concentrations vary widely on a local and regional basis. A recent study commissioned by our coalition, which was mentioned earlier, sheds further light on this issue. A copy of the report is attached to my testimony. I would like to emphasize several of the conclusions here.

There are great differences in both the quantity and quality of coarse PM emissions throughout the United States. For example, PM_{10} in the West, Southwest and Midwest is composed primarily of coarse particulate matter while PM_{10} in the East is composed primarily of fine particulate matter. In the West, Southwest and Midwest, the variations among PM_{10} within single counties are very high. By contrast, the within-county differences in the East are much smaller.

The localized nature of dust impacts leads to a great disparity in the effects of a single Federal standard on the different areas of the country. Our study focuses on the impacts of a potential new standard recommended for consideration in EPA's PM policy assessment. The potential new standard would be set somewhere within the range of 65 to 85 micrograms per cubic meter with a change to the 98 percent statistical form. The policy assessment concludes that a standard of 85 with a change in the form would be roughly equivalent to the current standard, and I heard the Assistant Administrator repeat that several times this morning. However, our study concludes that such a standard would be much more stringent than the current standard, particularly in the West, Southwest and Midwest as a result of the nature of the PM_{10} emissions in those areas.

Under the potential new standard, localized areas in virtually all of the West, Southwest and Midwest would be vulnerable to exceeedances. This is depicted in a map taken from our report, which is attached to my testimony, and I don't have it handy but it covers—oh, there it is. OK. You can see the extent of the country that it covers these. In these vulnerable areas, farmers, owners of dirt roads and operators of material storage and handling equipment will have few, if any, reasonable options to reduce emissions. Employment and businesses generating fugitive crustal dust will be impacted negatively. This impact would occur despite the conclusion in the policy assessment that the current Federal standard can reasonably be judged to provide sufficient public health protection.

Given the choice between the current and the potential new Federal standards, we have consistently supported retention of the current standard. In that respect, we are encouraged by the Administrator's recent letter indicating that EPA will propose to retain the current standard. However, the reasons I have discussed, we believe that State and local regulation is a much more efficient and effective means of protecting public health against dust emissions that have a very localized impact. Accordingly, we strongly support H.R. 1633 and we urge the subcommittee to adopt it.

I would be glad to answer any questions.

[The prepared statement of Mr. Blase follows:]

TESTIMONY OF KURT E. BLASE
SUBCOMMITTEE ON ENERGY AND POWER
HEARING ON" FARM DUST"
October 25, 2011

Summary of Major Points

1. Dust emissions currently are subject to stringent regulation pursuant to the current national ambient air quality standard for PM10.

2. Dusts composed primarily of crustal material have been reported to be harmful only at ambient levels much higher than the current PM10 standard of 150 micrograms per cubic meter over a twenty-four hour period.

3. The current PM10 standard limits production, and therefore employment, in dust-producing industries by imposing stringent dust emission limits in permits and state plans.

4. Recent research has made it increasingly clear that coarse PM emissions are subject to great local variability and are not amenable to a national regulation where "one size fits all."

5. EPA's PM Policy Assessment recommends consideration of a potential new PM10 standard set at approximately half the level of the current standard, with a change to the 98% statistical form. The Policy Assessment concludes that such a standard would be roughly equivalent to the current standard. However, a detailed study sponsored by our Coalition concludes that such a standard would be much more stringent than the current standard, particularly in the West, Southwest and Midwest.

6. Our Coalition is encouraged by Administrator Jackson's recent letter to Senator Klobuchar indicating that EPA will propose to retain the current PM10 standard. However, for the reasons discussed above, we believe that state and local regulation would be a much more efficient and effective means of protecting public health against fugitive crustal dust emissions that have a very localized impact. Accordingly, we strongly support H.R. 1633 and urge the Subcommittee to adopt it.

TESTIMONY
OF
KURT E. BLASE
ON BEHALF OF THE
COARSE PARTICULATE MATTER COALITION

BEFORE THE

SUBCOMMITTEE ON ENERGY AND POWER
HOUSE COMMITTEE ON ENERGY AND COMMERCE
HEARING ON
"FARM DUST"

October 25, 2011

Good morning Chairman Whitfield, Ranking Member Rush and Members of the Subcommittee. Thank you for inviting me to testify this morning. My testimony is offered on behalf of the Coarse Particulate Matter Coalition, an organization of industry groups with an interest in scientifically valid regulation of coarse particulate matter (PM) ambient air concentrations. The current members of the Coalition are listed in my written statement.[1]

Coarse PM, as we use the term, means particles that fall within the size fraction of 2.5-10 micrometers as measured by EPA reference test methods. These particles currently are regulated under the National Ambient Air Quality Standard (NAAQS) for PM10, which also includes PM2.5 particles in the fraction 0- 2.5

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[1] Current members include the National Stone Sand & Gravel Association, National Oilseed Processors Association, National Cotton Council, Corn Refiners Association, Kennecott Utah Copper, LLC and the Rubber Manufacturers Association.

micrometers as measured by EPA reference test methods. For over 15 years now, our Coalition has supported reasonable regulation of coarse PM emissions where necessary to protect public health and welfare.

In the past two reviews of the PM10 NAAQS, EPA and the Clean Air Scientific Advisory Committee (CASAC) have focused increasingly on urban road dusts as a potential public health threat. The theory has been that dusts by urban roadsides can become contaminated by other materials that render them more toxic. In contrast, dusts composed primarily of crustal material have been reported to be harmful only at ambient levels much higher than the current PM10 NAAQS of 150 micrograms per cubic meter over a 24- hour period.

Our Coalition consistently has supported retention of the current federal NAAQS, while exploring avenues for relief for fugitive crustal dusts emitted by extremely difficult-to-control sources such as natural dust emissions from unvegetated land, dirt roads, farms, and material storage and handling operations. The current PM10 NAAQS limits production, and therefore employment, in dust-producing industries by imposing stringent dust emission limits in permits and state plans. After available controls are employed, if the NAAQS is not attained the only way to reduce emissions is to cut production. The current NAAQS limits production at most, if not all of the facilities operated by our members. We have, therefore, been quite surprised at recent contentions that the regulation of dust is inconsequential in terms of its impacts on PM sources. It is anything but that, as all of our members would attest. In fact, the existing PM10 NAAQS is quite stringent.

In recent years, we have grown increasingly frustrated with the failure of the federal process to reflect the differences in coarse PM toxicity that are clearly demonstrated in the scientific record. In addition, recent research has made it increasingly clear that coarse PM emissions are subject to great local variability and are not amenable to a national regulation where "one size fits all." For these reasons, we strongly support the provisions of H.R. 1633, which would cease federal regulation of crustal dusts in areas where state and local regulators are doing the job.

Both EPA staff and CASAC have recognized that coarse PM concentrations vary widely on a local and regional basis.[2] A recent study commissioned by our Coalition and performed by Dr. John Richards of Air Control Techniques, P.C., sheds further light on this issue.[3] A copy of Dr. Richards' report is attached to my testimony. The report presents the following conclusions:

1. The coarse fraction of PM10 travels only short distances and has primarily a local impact.

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[2] See, e.g., OAQPS, *Policy Assessment for the Review of the PM NAAQS* (April 2011) at pp. 3-14-17 (citing EPA Integrated Science Assessment for PM); Letter from Dr. Jonathan Samet, CASAC Chair, to EPA Administrator Jackson re: CASAC Review of Policy Assessment for the Review of the PM NAAQS – Second External Review Draft (September 10, 2010), p. 8.

[3] Air Control Techniques, *Evaluation of Potential Changes to the Coarse Particulate Matter Ambient Air Quality Standard* (June 2011).

> 2. Permits require sources of dust emissions to maintain compliance with the federal NAAQS in all areas at and beyond their property line. Due to the localized impact of the coarse fraction of PM10, the NAAQS is more stringent when applied close to the source than when applied to widely-spaced county monitors used for attainment demonstration.
>
> 3. PM10 in the West, Southwest, and Midwest is composed primarily of coarse particulate matter, while PM10 in the eastern U.S. is composed primarily of fine particulate matter (PM2.5).
>
> 4. The West, Southwest, and Midwest have areas with low rainfall and frequent high winds. Fugitive dust emissions in these areas cause frequent PM10 spikes in 24-hour concentrations -- often more than the 8 spikes in a year that would show exceedance of the federal NAAQS even at widely spaced county monitors. These do not occur with such frequency in other areas of the country.

Our study includes a comparison of the monitor-to-monitor differences in PM10 concentrations within specific counties. This comparison clearly demonstrates the localized impact and short transport distances of the coarse fraction of PM10 in the West, Southwest, and Midwest. In these regions, the variations among PM10 concentrations within single counties averaged a very high value of 48.4 micrograms per cubic meter (μg/m3). By contrast, the within-county differences in the East averaged only 11.2 μg/m3.

Our study also finds that the short transport distances of the coarse fraction of PM10 are confirmed by conventional dispersion modeling of fugitive dust sources and point sources. Significant differences in PM10 concentrations are calculated for receptors located at distances of less than one-half mile from a source. Given the highly localized nature of dust emissions and impacts, we believe that state and local , rather than federal regulators, are in the best position to determine the regulatory measures needed to protect the public health and welfare.

The localized nature of dust impacts also leads to great disparity in the effects of a single federal NAAQSon different areas of the country. Our study focuses on the impacts of a potential new standard recommended for consideration in the PM Policy Assessment cited above. The potential new standard would be set somewhere within the range of 65-85 µg/m3, with a change to the 98% statistical form. The Policy Assessment concludes that a standard of 85 µg/m3 with the change in form would be roughly equivalent to the current standard. However, our study concludes that the new standard would be much more stringent than the current standard, particularly in the West, Southwest and Midwest.

Attached to my testimony is a map of the United States, taken from Dr. Richards' report, indicating that under the potential new standard, localized areas in all of the highlighted areas would be especially vulnerable to exceedances of the potentially revised PM10 NAAQS. In the especially vulnerable areas of the West, Southwest and Midwest, farmers, owners of dirt roads, and operators of material storage and handling equipment will have few, if any, reasonable options to reduce emissions. Employment in businesses generating fugitive crustal dust will be impacted. This impact would occur despite the conclusion in the Policy Assessment that the current NAAQS can reasonably be judged to provide sufficient public health protection.

Given the choice between the current and potential new federal standards, we have consistently supported retention of the current standard. In that respect, we are encouraged by the Administrator's recent letter to Senator Klobuchar indicating that EPA will propose to retain the current standard.[4] However, for the reasons I have discussed, we believe that state and local regulation is a much more efficient and effective means of protecting public health against fugitive crustal dust emissions that have a very localized impact. Accordingly, we strongly support H.R. 1633 and urge the Subcommittee to adopt it. I would be glad to answer any questions you may have.

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[4] Letter from Administrator Jackson to Sen. Klobuchar (October 14, 2011).

[Additional information for the record is available at http://www.beefusa.org/CMDocs/BeefUSA/Issues/PM%20Final%20PM10%20Report%200711.pdf]

Mr. WHITFIELD. Thank you, Mr. Blase.

Dr. von Wachter, you are recognized for 5 minutes.

STATEMENT OF TILL VON WACHTER

Mr. VON WACHTER. Thank you, Chairman Whitfield, Ranking Member Rush and members of the subcommittee. It is a great honor to be with you today.

Existing evidence suggests that air regulation provides important benefits in terms of improved air quality, improved health outcomes and improved housing values. However, it is also widely acknowledged that air regulation carries potential cost in terms of lower employment and lower productivity in regulated sectors. In my testimony, I will focus on current estimates of these costs and in particular on the costs for those workers most affected by the regulation, which are workers displaced when they are previously stable jobs.

So current best estimates of the effect of the Clean Air Act suggest that the economic costs for workers present in regulated sectors at the time of regulation are non-negligible. Existing research has shown that employment and productivity in regulated sectors declines, at least in the short run. In addition, there are large and persistent wage reductions for workers induced to leave regulated firms, especially those who end up working in a different sector.

Whether the costs of air regulation are of the same order of magnitude as the benefits in terms of improved health or housing values is likely to depend on the regulation and the environment which takes place. So for example, the most comprehensive study of the effects of the 1990 Clean Air Act Amendments suggests that there was a loss in wages over the next 10 years of workers who went through nonattainment of about $9 billion. Now, that is relative to the estimated benefits of the 1990 Clean Air Act Amendments. These losses appear to be temporary.

However, it is important to keep in mind that the 1990 Clean Air Act Amendments may have represented a best-case scenario. Why would that be? Well, this is because the amendments came into force not long before the high-pressure labor market in the mid to late 1990s, and this matters, because the cost of regulation in terms of lost wages and employment tends to mostly accrue to workers who are actually displaced due to the regulations, so it is job losers that lose their jobs as a consequence of regulation who bear most of the costs and job losses, especially for job losses for workers who had found a stable job at a good, stable firm can lead to very long-lasting large earnings losses. These earnings losses can least up to 10 to 15 to 20 years, and job loss is also followed by extended periods of job instability and earnings instability, and during these periods, job losers can experience decline in health. For example, in severe downturns, these health declines can lead to significant reduction in life expectancy over the next 20 or 30 years after a job loss.

The consequences of job loss are also felt by workers' children, who can suffer from the consequences even as adults and by their families, and job losses have also been associated with a higher rate of entry into potentially costly public programs such as Social Security disability insurance or early claiming of retirement benefits.

The earnings costs of job displacement, and this is important, has found to be substantially higher in recessions than in booms. While we know that even displacement in good economic periods can lead to lasting earnings losses, the one exception is the mid to late 1990s where even job losers tend to recover a big chunk of their earnings losses. So workers displaced from the firms as a consequences of the 1990 Clean Air Act Amendments were placed in an ideal case scenario because a few years down the road a very high-pressure economy pushed up their earnings.

To conclude, while many workers affected by air regulations are likely to be sufficient mobile to find a new job without major losses in employment and warnings, a subset of workers induced to move from their job due to the regulation either voluntarily or by layoff are at risk of experiencing quite large and lasting losses of earnings. Existing research suggests that these earning losses may be substantially larger in difficult economic environments.

Based on these findings, the economic costs of air regulations are likely to depend very much on the economic circumstances in which the regulation is enacted. Hence, a case-by-case assessment of these costs and their dependence on the economic environment, the type of regulation and the type of workers affected are important aspects when considering the net gain of air regulation.

Now, since I have a few seconds left, let me say, the results I quoted from the scientific studies mainly pertain to any reason the county could go into nonattainment that includes the PM_{10} standard, but it is not focused on this like PM3 to PM_{10} thus it could be due to coarse particulate matter. It could be just due to fine particulate matter or any other of the other criteria.

Now, the question you are asking, namely, has coarse particulate matter differential effect in rural areas that are engaging in agricultural production, or where there is a power plant or mining, as opposed to urban area is a very important question that academics potentially can answer, but it is a very difficult question that requires, as you can imagine, a very large amount of data. So this is sort of a call in my last seconds to provide this detailed amount of information so we can actually answer that important question you were asking.

[The prepared statement of Mr. von Wachter follows:]

Testimony before the Energy and Power Subcommittee of U.S. Congress
"Variation in the Cost of Job Loss over the Business Cycle"

October 25th 2011

Till von Wachter
Associate Professor of Economics
Columbia University

Chair Whitfield, Ranking Member Rush, and members of the Committee, it is an honor to be with you today. Existing evidence suggests that air regulation provides benefits in terms of improved air quality, improved health outcomes, and improved housing values (e.g., Chay and Greenstone 2003, 2005, Currie and Neidell 2005). However, it is widely acknowledged that air regulation also carries potential costs in terms of lower employment and lower productivity in regulated sectors (e.g., Greenstone 2002, Greenstone, List, and Syverson 2010). In my testimony I will focus on current estimates of the costs of air regulation, and in particular on the costs for those workers most affected by regulation – workers displaced from their previously stable jobs.

Our current best estimates of the effect of the Clean Air Act (CAA) suggest that the economic costs for workers present in regulated sectors at the time of regulation are non-negligible. Existing and ongoing research has shown that (A) employment in regulated sectors declines (Greenstone 2003); (B) productivity in regulated sectors is reduced (Greenstone, List, and Syverson 2011); (C) there are large and persistent wage reductions for workers induced to leave regulated firms, especially for those switching sectors after leaving their jobs (Reed 2011).

Whether the costs of air regulation are of the same order of magnitude as the benefits in terms of improved environment, health, or housing values is likely to depend on the regulation and the environment in which it takes place. For example, the most comprehensive study of the effects of the 1990 CAA Amendments (CAAA) to date estimates that there was a loss in wages of $9 billion in foregone earnings spread over 6 years after the law came into force (Reed 2011). Relative to the estimated benefits of the 1990 CAAA, these losses are temporary and moderate.

However, the 1990 CAAA may have represented a 'best case scenario'. This is because the amendments came into force not long before the high-pressure labor market of the mid- to late-1990s. This matters because the cost of regulation in terms of lost wages and employment tends to mostly accrue to workers induced to leave their job as a consequence of the regulation. This is true for air regulation (Reed 2011), as well as for other regulatory interventions in the labor market (e.g., Rose 1987, Card 1998).

An increasing number of studies show that displaced workers – workers that lose their stable job at stable, mid-size to large firms in the course of a downsizing – can experience large and lasting earnings losses lasting up to 15 to 20 years (e.g., Jacobson, Lalonde, and Sullivan 1993, von Wachter, Manchester, and Song 2011). While these earnings losses vary somewhat among demographic groups or industries, no group in the labor market is exempt from significant and long lasting costs of job displacement.

A job loss is also typically followed by an extended period of instability of employment and earnings (Stevens 1997, von Wachter, Manchester, and Song 2011). During this period, job losers can experience declines in health. In severe downturns, these health declines can lead to significant reductions in life expectancy of 1 to 1.5 years (Sullivan and von Wachter 2009). The consequences of job loss are also felt by workers' children, who can suffer from the consequences even as adults, and by their families (Stevens and Schaller 2009, Oreopoulos, Page, and Stevens 2008). Job losses have been also associated with a higher rate of entry into potentially costly public programs such as Social Security Disability Insurance (e.g., Autor and Duggan 2006) or Old Age Survivor Insurance (e.g., Chan and Stevens 2001).

The earnings cost of job displacement has been found to be substantially higher in recessions than in booms (Davis and von Wachter 2011). Yet, even displacements in good economic periods can lead to lasting earnings losses. However, since the early 1980s, the late 1990s is the only period in which studies have found that some job losers actually are able to substantially close the gap relative to similar workers that were not displaced (von Wachter, Handwerker, and Hildreth 2008, von Wachter, Manchester, and Song 2011). Hence, workers displaced from their firms as a consequence of the 1990 CAAA may have had an exceptionally quick and steep path of recovery from their initial losses in earnings.

To conclude, while many workers affected by air regulation are likely to be sufficiently mobile to find a new job without major losses in employment and earnings, a subset of workers induced to move from their job – be it voluntarily or by layoff – due to the regulation are at risk of experiencing large and lasting losses in earnings. Existing research suggests these earnings losses may be substantially lower in good economic environments than in recessions (Davis and von Wachter 2011). While even in a good economic environment air regulation can lead to economic costs, for existing regulation the overall magnitude of the cost has been shown to be lower than the estimated benefits (Reed 2011).

Overall, current research the actual economic costs – and hence the net gain – of air regulation is likely to depend on the economic circumstances in which the regulation is an enacted. Hence, an assessment of these costs and their dependence on the economic environment, the type of regulation, and the types of workers affected are important questions for future research.

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Mr. WHITFIELD. Thank you, Dr. von Wachter.

Mr. Walke, you are recognized for 5 minutes.

STATEMENT OF JOHN WALKE

Mr. WALKE. Thank you, Mr. Chairman and members of the subcommittee. My name is John Walke. and I am Clean Air Director for the Natural Resources Defense Council.

As the hearing today has shown, H.R. 1633 is premised on a problem that does not exist, that is, nonexistent EPA limits on farm dust. However, the devilish details of this poorly drafted bill actually create more real problems that the imaginary problems the bill purports to solve.

The bill is sweepingly overbroad and it creates numerous damaging consequences that appear to be unintended but that would in fact harm Americans. The result would be increases in harmful soot pollution, not just coarse particulate matter but deadly fine particulate matter, and across the country, not just in rural America but urban and metropolitan areas too. The legislation inexplicably weakens, eliminates or blocks Federal Clean Air Act authority over overwhelmingly industrial pollution from power plant, manufacturing facilities, mines and the like, again as a result of very overbroad and poor drafting.

Before you consider voting for a bill under the misconception that you are just addressing so-called farm dust, I urge your staff to examine closely the testimony by Assistant Administrator McCarthy and my own testimony to see whether you find fault with any of this legal analysis or factual implications of the bill. I will note that none of the other witnesses here today have contradicted those legal interpretations in their written testimony.

Finally, I urge your attention to a careful reading of the written testimony of most of the majority witnesses and Representative Noem's opening statement. Each time that testimony complains of existing regulations of farm dust, they are talking about State regulation, not EPA regulation, for example, in Arizona or Illinois. Isn't it paradoxical then that this bill does not eliminate State regulation of farm dust or its monitoring? By the same token, some have criticized the temporary relief provided by Administrator Jackson's pledge yet this bill provides a 1-year period of relief whereas Administrator Jackson's pledge provides a 5-year period of relief, equally paradoxical.

H.R. 1633 has been presented under the legislation guise of blocking nonexistent and unplanned EPA regulations of farm dust. I invite any witness or member to identify an EPA regulation in the Code of Federal Regulations where EPA imposes limits on farm dust. There are none.

Since Mr. Terry, who is not with us now, mentioned NRDC earlier, I invite him or any other member to identify any statutory authority to compel EPA to impose limits on farm dust. There is no such authority from me or any other environmental group to invoke.

Finally, I invite any member to identify any job in America that has been eliminated due to EPA limits on farm dust. There is none.

If Congress truly wants to address so-called farm dust with a simple bill, all it would take is a single sentence that says EPA shall not limit farm dust if States are doing so already yet this legislation does far more and far worse. As Mr. Pompeo correctly reads the bill, it removes Federal Clean Air Act over deadly soot pollution from power plants, mines and the like if States if doing so already. Mr. Griffith does not read the bill that way, and I think it creates some genuine confusion about what the bill does, but Mr. Griffith does helpfully start to put his finger on things by pointing us to page 3 in line 15 of the bill where you could at least begin to address some of these problems in overdrafting with the addition of the word "and." However, I would like to note that this would still allow the exemption of pollution if an activity typically occurs in a rural area. As Mr. Waxman said, 70 percent of power plants do so. I don't think that is what the committee intends. By the same token, it would allow the exemption of pollution if it is windblown. I hope that we can agree that all pollution is windblown, and we don't want to eliminate Federal regulation by virtue of that fact.

Section 3 really is the most problematic feature of the bill. I think my written testimony and Assistant Administrator McCarthy's testimony covers that, so I am not going to repeat that now. But I do have to say that this bill does produce what appear to be unintended consequences that I think could be corrected but not based upon the existing structure of the bill. I notice that elsewhere in the House this week the Judiciary Committee is considering the REINS Act, which purports to address and rein in excessive delegation of Federal authority to Federal agencies, and yet again, paradoxically, H.R. 1633 engages in excessive delegation of sweeping and vague authorities to deregulate industrial pollution across America. I don't think that is what the bill intends to do, and I would urge you not to pass H.R. 1633 in its present form. Thank you.

[The prepared statement of Mr. Walke follows:]

Summary of Testimony of John D. Walke, NRDC

Coarse particle pollution – also known as soot or PM_{10} – is a mixture of materials such as metals, organics, smoke and acids. The following activities are the major sources of this type of soot pollution:

- Fly ash from coal and oil combustion;
- Industrial processes;
- Tire and paving materials from roads;
- Mining and mineral processes; and
- Construction and demolition activities.

When inhaled, these particles can cause serious health problems, including:

- Hospital admissions for heart disease;
- Increased hospital admissions and doctors' visits for respiratory disease;
- Increased respiratory symptoms in children;
- Decreased lung function; and
- Premature death in people with heart or lung disease.

EPA has set standards for coarse particle pollution since 1987. H.R. 1633 attempts to block EPA from setting health-based standards for this pollution in the future. The bill fundamentally rewrites the Clean Air Act to interfere with EPA's study of the science of coarse particle pollution; introduces a vague and expansive definition of "nuisance dust" that would exempt much dangerous $PM_{2.5}$ and PM_{10} industrial pollution across large swaths of the United States; and make it more difficult for states to meet air quality standards.

It would be irresponsible to deny the American people the right to breathe clean air. Coarse particle pollution standards have protected all Americans from the serious health consequences of this pollution since 1987, and we should not block or weaken these life-saving protections now. This bill is sweepingly over-inclusive, creates unintended consequences, and increases harmful air pollution and health hazards for the American people.

TESTIMONY OF JOHN D. WALKE
CLEAN AIR DIRECTOR
NATURAL RESOURCES DEFENSE COUNCIL
LEGISLATIVE HEARING ON — H.R. 1633,
THE "FARM DUST REGULATION PREVENTION ACT OF 2011."
BEFORE THE SUBCOMMITTEE ON ENERGY AND POWER,
COMMITTEE ON ENERGY AND COMMERCE
U.S. HOUSE OF REPRESENTATIVES
OCTOBER 25, 2011

Thank you, Mr. Chairman and members of the Subcommittee, for the opportunity to testify today. My name is John Walke, and I am clean air director and senior attorney for the Natural Resources Defense Council (NRDC). NRDC is a nonprofit organization of scientists, lawyers, and environmental specialists dedicated to protecting public health and the environment. Founded in 1970, NRDC has more than 1.2 million members and online activists nationwide, served from offices in New York, Washington, Los Angeles, San Francisco, Chicago, and Beijing. I have worked at NRDC since 2000, and before that I was a Clean Air Act attorney in the Office of General Counsel for the U.S. Environmental Protection Agency. Over the last decade, I represented NRDC in many of the rulemakings and lawsuits relating to coarse particle standards discussed in my testimony.

Coarse Particle Pollution and Health Impacts

Coarse particle pollution – also known as soot or PM_{10} – is a mixture of materials such as metals, organics, smoke and acids.[1] The particles are called "PM_{10}" because they are microscopic particles that measure between 2.5 and 10 microns in diameter – approximately seven times smaller than the diameter of one human hair.[2] Manmade sources of coarse particle pollution come from a variety of sources, including coal dust, fly ash, wood smoke, diesel soot, asbestos fibers, aluminum, silica, iron oxides[3] and tire and brake wear.[4] In its 2006 review of the science on soot pollution the Bush Administration found that the following activities are the major sources of this type of soot pollution:

- Fly ash from coal and oil combustion;
- Industrial processes;
- Tire and paving materials from roads;
- Mining and mineral processes; and
- Construction and demolition activities.[5]

The mixture is often embedded with toxic substances and infiltrates the airways and lungs, often penetrating past the body's natural defensive systems. For example, crushing and grinding activities and tailing materials from sources such as mines result in coarse particles that have been found to contain arsenic and lead.[6] As noted above, soot pollution of this size is emitted by a variety of pollution sources, including power plants, oil refineries and diesel engines. When inhaled, these particles can cause serious health problems, including:

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[1] U.S. EPA, Basic Information: Particulate Matter, *available at* http://epa.gov/air/particlepollution/basic.html (last visited Oct. 20, 2011).

[2] American Lung Association, *Dangerous to Breathe: Why EPA needs to protect us from Coarse Particles*, *available at* http://www.lungusa.org/healthy-air/outdoor/resources/coarse-particle-fact-sheet.pdf (last visited Oct. 20, 2011).

[3] U.S. EPA, *September 2006 Revisions to the National Ambient Air Quality Standards for Particle Pollution, Overview*, p.4 *available at* http://www.epa.gov/pm/pdfs/20061013_presentation.pdf (last visited Oct. 20, 2011).

[4] *Id.*

[5] *See, e.g.*, U.S. EPA, Review of National Ambient Air Quality Standards for Particulate Matter: Policy Assessment of Scientific and Technical information, OAQPS Staff Paper, December 2005, table 2-2 *available at* http://www.epa.gov/ttn/naaqs/standards/pm/data/pmstaffpaper_20051221.pdf (last visited Oct. 20, 2011).

[6] *See, e.g.*, Eric A. Betterton et al.., *Metal and Metalloid Contaminants in Atmospheric Aerosols from Mining Operations*. 221 WATER AIR SOIL POLLUTION 145-157 (2011) *available at* http://tools.niehs.nih.gov/srp/researchbriefs/view.cfm?Brief_ID=202 (last visited Oct. 20, 2011).

- Hospital admissions for heart disease;
- Increased hospital admissions and doctors' visits for respiratory disease;
- Increased respiratory symptoms in children;
- Decreased lung function; and
- Premature death in people with heart or lung disease.[7]

Even at concentrations near current national standards, inhalation of coarse particle pollution is associated with "adverse pulmonary and extrapulmonary health effects" including exacerbation of chronic obstructive pulmonary disease and asthma.[8] Further, a review of epidemiologic studies shows that coarse particle pollution is associated with both short-term and long-term mortality and has a strong effect on both cardiovascular and respiratory hospital admissions.[9]

Children are particularly sensitive to coarse particle pollution. A recent study of the San Joaquin valley in California, an area with "ozone and particulate matter air pollution [] [that is] among the worst in the state," found that rates of asthma in the area were similarly some of the highest in the state.[10] Asthma rates among children in this area are as high as 20%, compared to the state average of 13%.[11]

As noted above, coarse particle pollution is defined based on size. As a result, the health-based air quality standards that the Environmental Protection Agency (EPA) sets for coarse particle pollution within the regulatory framework described below do not differentiate between sources of this pollution. Instead, the agency sets national health-based air quality standards for pollution based on the size of the pollution particles.

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[7] U.S. EPA, Final Revisions to the National Ambient Air Quality Standards for Particle Pollution (Particulate Matter), Sept. 21, 2006, *available at* http://www.epa.gov/pm/pdfs/20060921_factsheet.pdf (last visited Oct. 20, 2011) ("2006 Review Fact Sheet").

[8] Yuh-Chin T. Huang, MD, MHS, FCCP, *The Clean Air Act : Science, Policy and Politics*, 140 CHEST 1 (July 2011).

[9] *Id.* at 2.

[10] Virginia Rondero Hernandez, et al., *Struggling to Breathe: The Epidemic of Asthma Among Children and Adolescents in the San Joaquin Valley*, 2004, at 9 *available at* http://www.csufresno.edu/ccchhs/documents/childrens_institute/asthma.pdf (last visited Oct. 20, 2011).

[11] *Id.*

National Ambient Air Quality Standards for Coarse Particle Pollution

The Clean Air Act (CAA) requires EPA to set so-called National Ambient Air Quality Standards, or NAAQS, for pollutants considered harmful to public health or the environment. CAA §109. To date, EPA has set NAAQS for six "criteria" pollutants: carbon monoxide, lead, sulfur dioxide, nitrogen dioxide, ozone, and particulate matter (both $PM_{2.5}$ and PM_{10}).[12] The law then requires EPA to review these standards every five years so that the science upon which the standards are based is periodically reviewed and standards can be adjusted accordingly. §109(d). NAAQS are set at a level that is "requisite to protect the public health" with an "adequate margin of safety." §109(b)(1).

The setting of NAAQS is a two-step process.

First, EPA must identify levels of air pollution that are unhealthy for humans, based upon the best medical and scientific evidence. EPA then establishes permissible concentrations of that pollution in the air that are necessary to protect public health with an adequate margin of safety. These health standards for pollution are set on a national level, without regard to sources of the pollution. It is this health standard-setting process that EPA Assistant Administrator for Air Gina McCarthy described in an April letter responding to Senator Mike Johanns (R-N.E.).[13] McCarthy noted that clean air standards "are set to protect public health from outdoor air pollution and are not focused on any specific category of sources or any particular activity (including activities related to agriculture or rural roads)."

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[12] U.S. EPA, National Ambient Air Quality Standards, *available at* http://www.epa.gov/air/criteria.html (last visited Oct. 20, 2011).

[13] Letter from Regina McCarthy, Assistant Administrator for Air, U.S. EPA, to Senator Mike Johanns, April 14, 2011, *available at* http://johanns.senate.gov/public/?a=Files.Serve&File_id=d6489e89-3ac6-4e98-b65f-fcbe6324949b (last visited Oct. 20, 2011).

The second stage of the NAAQS process involves EPA and states identifying the sources of that pollution that are appropriate to control, based upon considerations such as the magnitude of those industries' contributions to the problem, the cost-effectiveness of controls, and the availability and technological feasibility of controls. Only at this second stage are specific polluters identified for control by states and EPA. Even then, federal control measures adopted by EPA cover large and ubiquitous sources of industrial pollution, and have *never* covered "farm dust."

EPA has set standards for soot pollution since 1971, and specifically for PM_{10} since 1987. EPA last re-examined standards for coarse and fine soot pollution in 2006, at which time the agency decided to keep the coarse particle standards at the same level as they were set in 1987.[14] EPA is currently in the first stage of the NAAQS review process, studying the science behind the soot standards with the assistance of EPA's independent expert science advisors, as required by the Clean Air Act. The NAAQS review process begins with an assessment of the science about particle pollution and its effects on public health and welfare. EPA compiles this assessment into an "Air Quality Criteria Document."[15] Next, EPA's office of Air Quality Planning and Standards prepares a "staff paper" that summarizes and interprets the information from the criteria document to create a basis for staff recommendations to the EPA Administrator.[16]

After comprehensively reviewing the relevant science and medical literature, the law requires EPA to issue a proposal, even if it proposes to keep soot standards exactly the same. Staff planning documents from EPA's current review state that "it would be appropriate to consider . . . retaining . . . the current standard" for coarse particle pollution at the level it has been set at since 1987.[17] In fact, in a recent letter to Senator Stabenow, EPA Administrator Lisa Jackson indicated that she intends to follow the recommendations of EPA staff, stating that she is "prepared to propose the retention – with no revision – of the current PM_{10} standard and form when it is sent to OMB for interagency review."[18] Senator Mike Johanns reacted to this news by stating that with this announcement, EPA has provided "unequivocal assurance that it won't attempt to regulate farm dust."[19] It is in the context of this decision that legislation over so-called "farm dust" must be analyzed.

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[14] National Ambient Air Quality Standards for Particulate Matter, Final Rule, 71 Fed. Reg. 61,144 (Oct. 17, 2006) ("2006 Final Rule").
[15] *Supra* n.2, 2006 Review Fact Sheet.
[16] *Id.*

"Farm Dust" Legislation

Under the fundamentally misleading title of the "Farm Dust Regulation Prevention Act of 2011," substantively identical bills have been introduced in both the House (H.R. 1633 – the subject of this hearing) and Senate (S. 1528) to block the Environmental Protection Agency from updating health standards for coarse particle pollution. These bills have been presented under the legislative guise of blocking nonexistent and unplanned EPA regulation of so-called "farm dust."

EPA does *not* require pollution reductions from any specific sources or sectors pursuant to the NAAQS-setting process. The plain language of the Clean Air Act and 40 years of experience setting NAAQS for particulate matter of one size or another make this clear. Precisely for this reason, the claim that EPA is attempting to set standards for "farm dust" is profoundly wrong. As such, bills like H.R. 1633 that attempt to prevent EPA from regulating

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[17] U.S. EPA, Policy Assessment for the Review of Particulate Matter National Ambient Air Quality Standards, ES-2*availabke at* http://www.epa.gov/ttn/naaqs/standards/pm/data/20110419pmpafinal.pdf (last visited Oct. 20, 2011).

[18] Letter from Lisa Jackson, EPA Administrator, to Senator Debbie Stabenow, U.S. Senator (Oct. 14, 2011) *available at* http://epa.gov/pm/pdfs/20111014Stabenow.pdf (last visited Oct. 20, 2011) ("Stabenow letter").

[19] Senator Mike Johanns, Press Release: Johanns Applauds EPA Announcement on Farm Dust," October 17, 2011 *available at* http://johanns.senate.gov/public/?p=PressReleases&ContentRecord_id=2a744644-4c75-4171-b69b-cff85b0e1ab9 (last visited Oct. 20, 2011).

"farm dust" have unintended consequences that in fact would make it more difficult for rural areas of the country to meet health-based air quality standards.

These bills would deny Americans the right to know if the air is safe to breathe by blocking a scientific and health review of soot standards and, as noted above and discussed below, would force EPA to ignore harmful soot pollution emitted overwhelmingly by industrial polluters like coal-burning power plants, incinerators, chemical plants, and oil refineries, along with diesel vehicles. Not farms, which the bills use as cover for abolishing review of health standards for industrial pollution.

There are no EPA farm dust regulations. There are no such proposed regulations. There are no EPA intentions for such regulations. EPA Administrator Lisa Jackson has specifically disavowed such intentions in Congressional testimony when asked directly by Congress. And just last week, Administrator Jackson announced her intention to propose no change to the PM_{10} standards pursuant to the mandatory statutory review that had prompted the fact-free hysteria over so-called "farm dust."[20]

Legislative Analysis

H.R. 1633 fundamentally rewrites the Clean Air Act to interfere with EPA's study of the science of coarse particle pollution; introduces a vague and expansive definition of "nuisance dust" that would exempt many types of industrial pollution; and makes it more difficult for states to meet air quality standards.

H.R. 1633 would prevent EPA from examining new science or proposing new standards for soot pollution. EPA has already indicated that it intends to maintain soot pollution standards at current levels, so there is no reason for this legislation to go forward.[21]

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[20] *See* Stabenow letter.
[21] *Id.*

H.R. 1633 would prohibit EPA from conducting the *first* stage of the NAAQS – setting process, as described above – the health standard-setting process. In other words, the bill bars EPA from telling the truth to Americans about the safety of the air we breathe – something that Congress never has done before. So even if Administrator Jackson has announced her intention not to change the current PM10 standards, this legislation is fundamentally misguided. It would set a shameful congressional precedent to subvert valid scientific processes and ratify the deception of Americans about the healthiness of the air that we all must breathe.

EPA does *not* require pollution reductions from any specific sources or sectors pursuant to the NAAQS-setting process. Precisely for this reason, the claim that EPA is attempting to set standards for "farm dust" is profoundly wrong.

H.R. 1633's purported purpose is to "establish a temporary prohibition against revising any national ambient air quality standard applicable to coarse particulate matter" and "to limit Federal regulation of nuisance dust." Tellingly, neither of these goals mentions farms or agriculture.

Section-by-Section Analysis

Section 1: The "Short Title" of the legislation is the only place that "farm dust" is mentioned – and this section only lists the bill's title.

Section 2: This section provides one of the bill's governing legal prohibitions, and again, does not even *mention* agricultural operations or farm dust, stating:

> Before the date that is one year after the date of the enactment of this Act, the Administrator of the Environmental Protection Agency may not propose, finalize, implement, or enforce any regulation revising the national primary ambient air quality standard or the national secondary ambient air quality standard applicable to particulate matter with an aerodynamic diameter greater than 2.5 micrometers under section 109 of the Clean Air Act.

This language plainly takes aim at the first stage of NAAQS review – updated health standards for soot pollution. EPA Administrator Lisa Jackson has announced that EPA will not change the standards for coarse particle pollution at this time.[22]

The Clean Air Act requires review of NAAQS every five years, even if no changes are proposed or adopted. EPA's recent announcement that it will propose to make no change in the NAAQS for coarse particle pollution means that the existing PM_{10} standard would remain at its 1987 level for (at least) another five years. Notably, the bill's language (only) blocks EPA from proposing or finalizing revisions to the PM_{10} NAAQS for one year, meaning Administrator Jackson's announcement would maintain the current PM_{10} standard 4 years longer than this bill. EPA's announcement renders the *stated* rationale for the provision unnecessary, but actually provides greater "certainty" than the bill by an additional 4 years.

The bill does something much more damaging than EPA's announcement, however, creating what appears to be unintended consequences as a result of poor drafting. The bill goes on to block for one year implementation and enforcement of "any regulation revising" the primary and secondary standards for PM_{10} without clearly stipulating that such revisions must occur in the future during the one-year ban period. In other words, the bill could be read prevent implementation and enforcement of *past* revisions to the PM_{10} standards. This includes the most recent revisions to those standards in 2006, by the Bush administration.

In the 2006 review, the Bush administration announced that it would 1) retain current 24-hour PM_{10} standards at 150 micrograms per cubic meter and 2) that it would revoke the annual PM_{10} standards set at 50 micrograms per cubic meter.[23,24] The agency also made a number of announcements relating to monitoring. The agency announced a so-called "multi-pollutant"-based approach that removed monitors measuring PM_{10} if they were "redundant or measuring air quality concentrations well below the level of the 24-hour standard for coarse particle pollution.[25] Also, the federal reference method (FRM) was revised to accompany and facilitate this revised monitoring approach.[26] The Agency stated that:

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[22] *See* n. 17, Stabenow letter.

[23] *See, e.g., supra,* n.6, 2006 Review Fact Sheet.

[24] *See supra* n. 4, *September 2006 Revisions to the National Ambient Air Quality Standards for Particle Pollution, Overview*, at 11.

> EPA is promulgating a new reference method (FRM) for measurement of mass concentrations of PM10–2.5 in the atmosphere. Although NAAQS for PM10–2.5 have not been established by EPA, this new FRM will nevertheless be defined as the standard of reference for measurements of PM10–2.5 concentrations in ambient air. This should provide a basis for approving Federal Equivalent Methods (FEMs) and promote the gathering of scientific data to support future reviews of the PM NAAQS. One of the reasons for not finalizing a PM10–2.5 standard was the limited body of evidence on health effects associated with thoracic coarse particles from studies that use PM10–2.5 measurements of ambient thoracic coarse particle concentrations. If an FRM is available, researchers will likely include PM10–2.5 measurements of thoracic coarse particles in health studies either by directly using the FRM or by utilizing approved equivalent methods based on the FRM.
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> In addition, EPA published elsewhere in today's Federal Register a requirement for a new multi-pollutant monitoring network that takes an integrated approach to air quality measurements. One of the required measurements at these multi-pollutant monitoring stations is PM10–2.5. The availability of an FRM, and subsequently approved equivalent methods for PM10–2.5, will support State and local agencies' efforts to deploy robust methods at these monitoring stations for the measurement of thoracic coarse particles that do not include fine particles. These multi-pollutant monitoring stations will provide a readily available dataset at approximately 75 urban and rural locations for atmospheric and health researchers to compare particle and gaseous air pollutants.

71 Fed. Reg. 61,144, 61,202 (Oct. 17, 2006).

The changes made to the standards in 2006 constitute a "revision" of coarse particle pollution standards, since the 2006 standards altered previous 1987 standards for the pollution (despite the fact that the 2006 review did not tighten standards for 24-hour coarse particle pollution). As a result, the broad language of section 2 could mean the rollback of clean air standards and monitoring methods for coarse particle pollution instituted as a result of the 2006 review.

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[25] U.S EPA, *Revisions to Ambient Air Monitoring Regulations*, Fact Sheet, *available at* http://www.epa.gov/pm/pdfs/20060929_factsheet.pdf (last visited Oct. 20, 2011).

[26] U.S. EPA, September 2006 Final Amendments to the National Air Quality Monitoring Requirements, Particulate Matter, *available at* http://www.epa.gov/pm/pdfs/20061025_presentation.pdf (last visited Oct. 20, 2011).

These potential rollbacks, along with EPA's announcement that they will propose to maintain current coarse particle pollution standards for the next NAAQS review should dissuade members of Congress from going forward with this bill. Some members' desire to proceed with this poorly-drafted and damaging legislation reveals H.R. 1633 for what it is – legislation that has nothing to do with protecting farmers or stopping EPA from regulating so-called "farm dust." Instead, this is just another bill aimed at rewriting and weakening the Clean Air Act to create broad exemptions so that big industrial polluters can pollute our air. The bill's definition of "nuisance dust," as described more fully *infra*, in section 3, makes clear that this bill would only make it easier for big industrial polluters such as mining sites and oil and gas operations to spew pollution into our air.

Thus, the bill would prevent EPA paradoxically from implementing or enforcing the 2006 EPA revocation of the annual PM_{10} standard. This has already happened, so who does it matter? Because many states likely have not revised their state implementation plans (SIPs) to remove measures related to an annual PM_{10} standard, including in preconstruction permitting programs. By the same token, EPA will not have acted to approve those SIP revisions. Accordingly, for at least 1 year following H.R. 1633's enactment, EPA would be prohibited from processing deregulatory SIP revisions or taking any other actions related to the 2006 revision of the PM_{10} standard.

Section 3: Section 3 of the bill fundamentally rewrites the Clean Air Act to add vague and damaging language to the Act. It also would have the perverse effect of making it more difficult for states to deliver clean air to their citizens and attain federal health-based air quality standards for PM_{10} and $PM_{2.5}$. This section attempts to revive an exemption to PM_{10} monitoring in rural areas proposed by the Bush administration during the 2006 PM_{10} NAAQS review that would put many Americans' health at risk.

The language of section 3 would provide EPA a way to set health-based standards for coarse particle pollution if certain conditions are met. This language (proposed section 132(b)(1) and (2)) incorporates a cost-benefit test that would displace the longstanding, exclusive health basis in Clean Air Act section 109's standard-setting process. Further, this language would overturn *Whitman v. American Trucking Associations,* a unanimous Supreme Court decision, with respect to coarse (PM_{10}) and fine ($PM_{2.5}$) particle pollution.[27]

Justice Antonin Scalia authored the unanimous opinion for the Court in 2001, writing that the Act prohibits clean air from being defined based upon economics rather than science and medicine. The justices found in *Whitman v. American Trucking Associations* that the plain language of the Clean Air Act disallows cost considerations (like those that H.R 1633 would allow) when deciding how much air pollution is unhealthy for Americans to breathe. For over 41 years, the Clean Air Act has granted Americans the right to clean air. Congress has never overturned this 41-year old basis of clean air standards, and it should not start now.

The bill then adds an exception to the Clean Air Act for "nuisance dust," which is defined as "particulate matter" that is:

> (1) generated from natural sources, unpaved roads, agricultural activities, earth moving, or other activities typically conducted in rural areas, or (2) consisting primarily of soil, other natural or biological materials, windblown dust, or some combination thereof.

This definition would have serious and damaging impacts on American citizens' right to breathe clean air. Many key terms in this exemption are entirely undefined, and the consequences of these vague definitions, taken to their logical conclusions, would mean that large swathes of the country would have significant air pollution problems that would have to be entirely ignored for purposes of meeting federal standards. Further, this "nuisance dust" air pollution would likely come from sources such as power plants, mining operations, other industrial activities, and significant varieties and numbers of motor sources that have nothing to do with farms.

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[27] 175 F.3d 1027 (2001).

At the outset, analysis of this highly problematic definition and its (likely) unintended consequences must begin with the observation that the definition applies to "particulate matter" under the Clean Air Act, including not just PM_{10}, coarse particles, but $PM_{2.5}$, fine particles. This is very different from Section 2 of the bill, which applies exclusively to PM_{10} or "particulate matter with an aerodynamic diameter greater than 2.5 micrometers." $PM_{2.5}$ is smaller and different than anything commonly understood to be so-called "farm dust," and $PM_{2.5}$ is emitted overwhelmingly by industrial pollution sources and motor vehicles.[28] $PM_{2.5}$ is more hazardous to human health, even deadly, because of its ability to penetrate deep into the lungs and respiratory systems, past the body's natural defensive systems.[29] So the legislative analysis that follows must be understood to extend well beyond anything called "farm dust."

Undefined Terms

The implications of the bill's vague language are seen in the entirely undefined term, "rural areas." Even the United States Department of Agriculture (USDA) acknowledges that there are "different definitions of rural by Federal agencies" that "reflect the multidimensional qualities of rural America."[30] A USDA map using 2003 data indicates that two-thirds of the counties in the United States are rural "nonmetropolitan counties."[31] The U.S. General Accounting Office, Bureau of the Census, and White House Office of Management and Budget all have different definitions of the term.[32] Under most definitions of the term however, rural areas constitute approximately 80% of the land in the United States.

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[28] U.S. EPA, *Particulate Matter, available at* http://www.epa.gov/oar/particlepollution/index.html (last visited Oct. 20, 2011).

[29] U.S. EPA, *Health, available at* http://www.epa.gov/oar/particlepollution/health.html (last visited Oct .20, 2011).

Despite this stunning breadth and coverage, H.R. 1633 nonetheless exempts all "*activities typically conducted in rural areas*." Most coal-fired power plants are located in nonmetropolitan areas that would qualify as "rural" under some definitions of that term.[33] In addition, all manner of motor vehicle traffic is "typically conducted in rural areas," from passenger vehicles to commercial vehicles to huge industrial diesel equipment; the bill's poorly drafted definition would exempt all particulate matter from these activities federal regulation if states were regulating it somehow, subject to the very poorly conceived and new criteria in section 132(b).

A USDA study provides a window into what other types of so-called activities could by encompass by the expansive definition. For example, the study notes that "the manufacturing sector employs nearly twice as many nonmetro [rural] workers as the farm sector does."[34] Further, a 2006 study found that agricultural jobs account for only 7% of jobs in rural areas.[35] The report also found that "[r]ural counties account for 62% of all resource dependent employment in the U.S."[36] Resource-dependent employment includes such types of industries as oil and gas extraction, coal mining and metal ore mining. The Bureau of Labor Statistics notes that "in many rural areas, mining operations are the main employer."[37] These numbers indicate that, in contrast to farming "dust," the type of coarse particle pollution that H.R. 1633 would exclude from EPA regulation would largely consist of particle pollution from industrial and manufacturing operations, motor vehicles, mining operations and many other polluting activities across the American economy.

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[30] U.S. Department of Agriculture, *What is Rural*, *available at* http://www.nal.usda.gov/ric/ricpubs/what_is_rural.shtml (last visited Oct. 20, 2011).

[31] U.S. Department of Agriculture, *An Enhanced Quality of Life for Rural Americans: Rural Gallery*, *available at* http://www.ers.usda.gov/Emphases/Rural/Gallery/nonmetrocounties.htm (last visited Oct. 20, 2011).

[32] *Id.*

[33] For example, this document identifies power plants and the counties nationwide where they are located, many if not most of which qualify as "rural" under one of the aforementioned government definitions of that term. U.S. EPA, Clean Air Markets – Data & Maps, report generated at _http://camddataandmaps.epa.gov/gdm/index.cfm (last visited Oct. 23, 2011)(excel spreadsheet of locations of all U.S. utilities attached).

[34] U.S. Department of Agriculture, *Rural Employment at a Glance*, *available at* http://www.ers.usda.gov/publications/eib21/eib21.pdf (last visited Oct. 20, 2011).

[35] Michael E. Porter, et al., *Competitiveness in Rural U.S. Regions: Learning and Research Agenda*, Institute for Strategy and Competitiveness, Harvard Business School (2004), at 19 *available at* http://www.eda.gov/PDF/EDA_Rural_Regions_Final.pdf (last visited Oct. 20, 2011).

This legislation provides an irresponsible windfall to industrial polluters across America under the misleading banner of the "Farm Dust Regulation Prevention Act of 2011." It is not surprising, therefore, in light of these sweeping industrial pollution consequences that today's witnesses include the "Coarse Particle Coalition." Its industrial members include "the National Stone, Sand and Gravel Association, the Industrial Minerals Association, the American Forest and Paper Association, the Portland Cement Association and the National Cotton Council." 71 Fed. Reg. at 61,182.

But today's witnesses just as easily could have included trade associations for the electric power industry, the oil industry, the chemical industry and others, since the legislation confers an unjustified and undeserved polluting windfall upon these industries too, allowing them to increase emissions of not just coarse PM_{10} pollution but the deadly, fine $PM_{2.5}$ pollution too. For example, one of the group's listed members, Kennecott Utah Copper, LLC, has one of the world's largest open-pit mines, which, as noted *infra*, have been linked to serious health impacts because of their coarse particle pollution.[38]

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[36] *Id.* at 21-22.

[37] Bureau of Labor Statistics, *Mining, available at* http://www.bls.gov/oco/cg/cgs004.htm (last visited Oct. 20, 2011).

Turning back to the crucial definition of "nuisance dust" in Section 3: this definition is worded in the disjunctive, meaning it covers particulate matter from the aforementioned rural industrial activities "*or*" particulate matter "consisting primarily of soil, other natural or biological materials, windblown dust, or some combination thereof." This startlingly expansive definition encompasses virtually all forms of pollution regulated by the Clean Air Act. Take the terms "natural or biological materials." One commonly used dictionary, *The American Heritage Dictionary of the English Language, Fourth Edition,* defines "natural" as "existing in or formed by nature" and "materials" as "the substance or substances of which a thing is made or composed." It's hard to think of many of the air pollutants regulated by the Clean Air Act that do *not* qualify as "natural materials" according to the plain meaning of this term: toxic heavy metals like lead[39], mercury[40], chromium[41] and nickel[42]; minerals like arsenic and asbestos[43,44];

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[38] Kennecott Utah Copper, Bingham Canyon mine, *available at* http://www.kennecott.com/ (last visited Oct. 23, 2011).

[39] Agency for Toxic Substances and Disease Registry,ToxFAQs, *Lead, available at* http://www.atsdr.cdc.gov/toxfaqs/TF.asp?id=93&tid=22 (last visited Oct. 23, 2011) ("Lead is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. Lead can be found in all parts of our environment. Much of it comes from human activities including burning fossil fuels, mining, and manufacturing.... Lead can damage the nervous system, kidneys, and reproductive system.").

[40] .S. Department of Labor, Occupational Safety and Health Administration, *Mercury, available at* http://www.osha.gov/SLTC/mercury/index.html (last visited Oct. 23, 2011) ("Mercury is naturally occurring and exists in several forms. High mercury exposure results in permanent nervous system and kidney damage. Exposure is most likely to occur during mining, production, and transportation of mercury, as well as mining and refining of gold and silver ores.").

[41] Agency for Toxic Substances and Disease Registry,ToxFAQs, *Chromium, available at* http://www.atsdr.cdc.gov/toxfaqs/TF.asp?id=61&tid=17 (last visited Oct. 23, 2011)("Chromium is a naturally occurring element found in rocks, animals, plants, and soil . . . hromium can be found in air, soil, and water after release from the manufacture, use, and disposal of chromium-based products, and during the manufacturing process . . . Breathing high levels of chromium(VI) can cause irritation to the lining of the nose, nose ulcers, runny nose, and breathing problems, such as asthma, cough, shortness of breath, or wheezing . . . chromium[] compounds are known human carcinogens. In workers, inhalation of chromium[] has been shown to cause lung cancer.").

[42] Agency for Toxic Substances and Disease Registry,ToxFAQs, *Nickel, available at* http://www.atsdr.cdc.gov/toxfaqs/TF.asp?id=244&tid=44 (last visited Oct. 23, 2011) ("Nickel is a naturally occurring element...Workers who breathed very large amounts of nickel compounds developed chronic bronchitis and lung and nasal sinus cancers.").

[43] U.S. Department of Labor, Occupational Safety and Health Administration, *Arsenic, available at* http://www.osha.gov/SLTC/arsenic/index.html (last visited Oct. 20, 2011) ("Arsenic occurs naturally in the environment as an element of the earth's crust.... Exposure to high levels of arsenic can cause death.").

acid gases like hydrogen chloride[45]; and other by-products of coal or oil combustion. None of these pollutants is synthetic or artificial, the antonyms of natural.

This breathtakingly over-broad sweep is not suggested by the bill's title and does not appear to be intended by the bill's drafters; but this over-inclusiveness is reflected in the bill's poorly drafted and sweeping language.

Next, the bill defines particulate matter that is "windblown dust" as "nuisance dust," which would also qualify for lax treatment under the bill. The term "windblown" is defined simply as "blown by the wind" by the *Merriam Webster Unabridged Dictionary*. "Windblown dust" is not a defined term in the bill, and as virtually all particulate pollution is "windblown," this undefined term would swallow EPA's ability to regulate any particulate pollution, with devastating consequences for public health. As noted above, the poor drafting of section 3 already encompasses both $PM_{2.5}$ and PM_{10}. If all particulate matter, regardless of size, at any point is "blown by the wind," EPA would be largely unable to regulate or set health-based air pollution standards for this pollution.

Real-World Implications of Rewriting the Clean Air Act to Exclude "Nuisance Dust"

The impact of these broad, sweeping exemptions is two-fold. First, as described above, exempting these types of undefined particle pollution (of all sizes) would require EPA to pretend that much of the particle pollution registered by monitors daily does not exist. Second, since pollution from the enumerated categories of "nuisance dust" would be treated as if it didn't exist,

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[44] Agency for Toxic Substances and Disease Registry,ToxFAQs, *Asbestos* http://www.atsdr.cdc.gov/toxfaqs/TF.asp?id=29&tid=4 (last visited Oct. 23, 2011) ("Asbestos is the name given to a group of six different fibrous minerals . . . that occur naturally in the environment... Asbestos exposure can cause serious lung problems and cancer.").

[45] Agency for Toxic Substances and Disease Registry,ToxFAQs, *Hydrogen Chloride, available at* http://www.atsdr.cdc.gov/toxfaqs/TF.asp?id=759&tid=147 (last visited Oct. 23, 2011) ("[H]ydrogen chloride is a colorless to slightly yellow, corrosive, nonflammable gas that is heavier than air and has a strong irritating odor. On exposure to air, hydrogen chloride forms dense white corrosive vapors. Hydrogen chloride can be released from volcanoes. . .Exposure to high levels can result in corrosive damage to the eyes, skin, and respiratory tissues, and could lead to pulmonary edema and even death in extreme cases.").

it would be even more difficult, if not impossible, for states with industries whose emissions constitute "nuisance dust" to ever meet federal NAAQS. This is because H.R. 1633 would ignore "nuisance dust" pollution for purposes of federal programs, meaning that states could not get federal credit towards achieving their federal air quality goals for this type of pollution through their state implementation plans. These plans are used by states to attain or maintain compliance with national ambient air quality standards for $PM_{2.5}$ and PM_{10}, among other criteria pollutants. H.R.1633 unaccountably would subvert the ability of states to secure federal "credit" through their SIPs for state laws that address and reduce this type of pollution, even if states have been achieving such credit and even if they have state laws on the books for this purpose. For many states and counties with serious particle pollution from these sources, it would become more burdensome for industries *not* categorized as emitting "nuisance dust," which now would be compelled to shoulder the burden for achieving even more air pollution reductions to meet federal standards – due solely to the disruptive consequences of this legislation.

This would mean that for areas where particulate pollution comes largely from "nuisance dust" sources. Congress would be unaccountably condemning those areas to a persistent status of "nonattainment" with health-based NAAQS. For example, the Central Valley Air Quality Coalition Steering Committee criticized EPA's 2006 proposed particulate matter standards for attempting to exclude from health-based standards agricultural and mining operations' PM_{10} emissions. The Committee noted that "[b]y carving out the very sources that contribute the bulk of the particulate matter in the San Joaquin Valley (agricultural sources), EPA is all but guaranteeing that the Valley's air quality will not improve."[46] This would leave "the 1 .4 million rural Valley residents without any protection from dangerous coarse particles."[47] And the burden would have fallen to other San Joaquin Valley local businesses to reduce the harmful particulate matter pollution levels necessary to deliver clean air to Valley residents. The Bush administration did not go forward with its proposal.

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[46] Comments to EPA's Proposal to Revise the National Ambient Air Quality Standards for Particle Pollution and Proposal to Amend its National Air Quality Monitoring Requirements, Central Valley Air Quality Coalition Steering Committee, EPA-HQ-OAR- 2001-0017- 2418.

Further, as noted above, federal NAAQS do not differentiate between sources of particle pollution. Neither do monitors that test levels of particle pollution in the ambient air. Because of this technological reality, there would be no way to differentiate at monitoring sites which pollution comes from sources of "nuisance dust" and which does not. Monitoring and implementation concerns such as those briefly outlined here form the tip of the iceberg in attempting to forecast the damage that H.R. 1633 would cause not only to nationwide air quality, but also the entirety of the Clean Air Act.

The Clean Air Act already excludes air pollution caused by natural events and provides much of the flexibility that this bill appears to seek. The Act already excludes from compliance with clean air standards so-called "exceptional events" that are caused by natural events that affect air quality and are not reasonably controllable or preventable. Natural events include things like high winds, wildfires, dust storms, volcanoes and natural disasters. Air pollution caused or exacerbated by these qualifying activities already is exempt from compliance with health-based clean air standards for soot pollution. In fact, EPA has specifically identified "emissions from mining and agricultural activities" as the types of things that could constitute "exceptional events" and that would be specifically exempted when determining if states attain air quality standards.[48] Special statutory treatment of "exceptional events" thus ensures that air pollution exacerbated by natural events such as dust storms or high winds is not considered when assessing compliance with national health standards for soot pollution or other pollutants.

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[47] *Id.*

[48] U.S. EPA, Treatment of Data Influenced by Exceptional Events; Final Rule, 72 Fed. Reg. 13560 *et seq.* (March 22, 2007) *available at* http://epa.gov/ttncaaa1/t1/fr_notices/exeventfr.pdf (last visited Oct. 20, 2011).

Health Impact of Exempting "Rural" Particle Pollution

There are very real health consequences to exempting particle pollution from rural areas. In its 2006 review, EPA proposed to have coarse particle standards apply only in "urban" areas dominated by "urban" particulate sources, and no coarse particle pollution standards would have applied at all to mining and agricultural emissions. H.R. 1633 attempts to revive this misguided proposal, but the health concerns present during the 2006 review are still of great concern.

For example, in its comments to the 2006 proposal, "EPA's Proposal to Waive Clean Air Protection for Millions of Americans: The Politics of Coarse Particle Pollution," Earthjustice notes that "[t]he assumption that rural coarse particle pollution is not harmful is a false one that is refuted by some of the very epidemiological studies that EPA relies upon in attempting to formulate a rule that applies only to urban areas."[49] Studies of Steubenville, Ohio, and Portage, Wisconsin, both areas the the 2006 standards would have considered "rural", underscored the health consequences of "rural" air pollution. Steubenville, a small steel mill town in Ohio, has approximately 19,000 residents. EPA studies of particulate matter concentrations in Steubenville found statistically significant increase in death rates associated with increases in airborne concentrations of coarse PM.[50] The study of Portage, Wisconsin showed a similar trend.[51]

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[49] Earthjustice, EPA's Proposal to Waive Clean Air Protection for Millions of Americans: The Politics of Coarse Particle Pollution, Comments to EPA's proposed "Monitoring Rule,"EPA-HQ-OAR-2004-0018-0245 (Apr. 25, 2006) ("Earthjustice comments").

[50] 2 Nat'l Center for Envtl. Assessment, Envtl. Protection Agency, Pub. No. EPA/600/P-99/002aF, Air Quality Criteria for Particulate Matter § 8.2.2.3.1, at 8-40 (2004) (citing J. Schwartz, *Daily deaths associated with air pollution in six US cities and short-term mortality displacement in Boston*, *in* Special Report: Revised Analyses of Time- Series Studies of Air Pollution and Health 219-26 (Health Effects Inst. 2004), *available at* http://www.healtheffects.org/Pubs/TimeSeries.pdf.

[51] Earthjustice comments, at 3.

In another study that took place in Provo, Utah (another rural town with a steel mill), the results showed that "the coarse fraction of PM_{10} is typically much greater than the fine fraction."[52] EPA noted that the Provo study "provides[] . . . supportive evidence for associations between short-term exposure to thoracic coarse particles and health effects, particularly morbidity effects, generally in areas not meeting the PM_{10} standards."[53] A review of studies of children living near open-pit mines in rural areas found that "the studies support the conclusion that communities living near open-pit mines are exposed to health hazards as a result of ambient concentrations of $PM_{10\text{-}2.5}$ arising from those mines."[54]

In addition to health concerns raised from exposure to particle pollution regardless of content, the EPA 2006 study also surveyed substances that make up particle pollution. Earthjustice noted that EPA's results found that:

> [A] number of metals found in airborne coarse particulates have been shown by laboratory studies to cause adverse health effects. These include the so-called "transition metals" iron, copper, nickel, cobalt, vanadium, and cadmium, among others. Emissions of particulates containing a number of these metals are associated with the mining and smelting of ores, and the manufacturing of steel and other metal alloys. Certain airborne metal dusts are particularly associated with the combustion of fossil fuels—principally iron (coal) and vanadium (fuel oil).[55]

Arsenic, silica, radioactive wastes from mining and milling processes, and toxins present in resuspended particulate pollution from roads all are found in the particle pollution present in rural areas.[56] Further, the "proliferation of open-pit surface mining and mountaintop-removal coal mining, and of similarly widespread and destructive methods of mineral extraction, exacerbates these risks and extends them to members of the general public."[57] Though, as evidenced here, the harmful impact of "rural" particle pollution was well-documented, EPA's 2006 review could not identify any studies finding that "rural" particle pollution was less dangerous than "urban" particle pollution.

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[52] *Id.*
[53] *See* Environmental Protection Agency, Proposed Rule, National Ambient Air Quality Standards for Particulate Matter, 71 Fed. Reg. 2620, 2664 (Jan. 17, 2006).
[54] Earthjustice comments, at 5, citing *supra*, n. 32.
[55] Earthjustice comments, at 7.
[56] *Id.* 7-10.
[57] *Id.* at 9.

EPA's announcement that it will delay coarse particle pollution standards provides certainty regarding what the regulatory landscape will be for the next five years. On the other hand, H.R. 1633 causes very real damage. The legislation would rewrite a forty-plus year Clean Air Act obligation to identify clean air standards necessary to protect Americans' health with an adequate margin of safety, including new and undefined terms that could up-end the entire federal-state regulatory scheme that has been working for forty years. It would deny Americans their right to know something as basic as whether the air is safe to breathe. And worst of all, it would allow dangerous industrial pollution from the nation's biggest polluters to hide behind a deceptive industry lobbying campaign to scare farmers and ranchers with an urban myth about EPA regulation of "farm dust" that has time and time again been discredited and disproved.

This legislation proves the wisdom of two legal axioms: bad facts make bad laws, and poorly drafted laws produce unintended consequences. There are no EPA farm dust regulations – planned, proposed or actual – so it should come as little surprise that a law aimed at eliminating a nonexistent problem should be such a damaging bill: sweepingly over-inclusive, creating unintended consequences, causing more problems than it solves, and increasing harmful air pollution and health hazards for the American people.

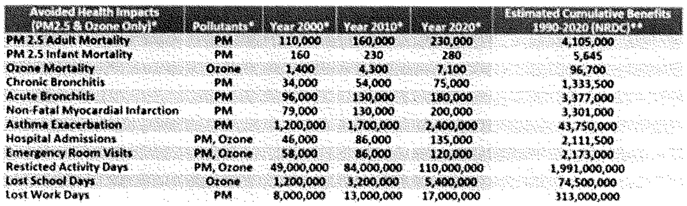
The Clean Air Act Works and Enjoys Overwhelming Public Support

The Clean Air Act is one of our country's most successful public health and environmental laws in the past 40 years marking the modern environmental era. The EPA recently released a report on the health and economic health benefits of the 1990 Clean Air Act amendments, assessed from 1990 to 2020.[58] The agency found that the Clean Air Act has saved over 160,000 lives every year by the year 2010, and the law will save over 230,000 lives every year by the year 2020.

NRDC analyzed the EPA report beyond the two target years of 2010 and 2020 in order to arrive at a cumulative assessment of the lives saved by the 1990 Clean Air Act Amendments by the year 2020. As summarized by my colleague, Christina Angelides:

> NRDC's own analysis of EPA's report shows that the 1990 amendments will have cumulatively saved **4.2 million lives** and avoided millions of cases of pollution-related illness by 2020 — including **43.8 million cases of asthma exacerbation, 3.3 million heart attacks, 2.1 million hospital admissions and 2.2 million emergency room visits, and 313 million lost work days**. For comparative purposes, 4.2 million is about the population of the city of Los Angeles.

A more detailed break-down of the avoided healthy impacts is presented in the following table (the blue portion is from the EPA report, while the green reflects NRDC's additional analysis)[59]:



Avoided Health Impacts (PM2.5 & Ozone Only)*	Pollutants*	Year 2000*	Year 2010*	Year 2020*	Estimated Cumulative Benefits 1990-2020 (NRDC)**
PM 2.5 Adult Mortality	PM	110,000	160,000	230,000	4,105,000
PM 2.5 Infant Mortality	PM	160	230	280	5,645
Ozone Mortality	Ozone	1,400	4,300	7,100	96,700
Chronic Bronchitis	PM	34,000	54,000	75,000	1,333,500
Acute Bronchitis	PM	96,000	130,000	180,000	3,377,000
Non-Fatal Myocardial Infarction	PM	79,000	130,000	200,000	3,301,000
Asthma Exacerbation	PM	1,200,000	1,700,000	2,400,000	43,750,000
Hospital Admissions	PM, Ozone	46,000	86,000	135,000	2,111,500
Emergency Room Visits	PM, Ozone	58,000	86,000	120,000	2,173,000
Resticted Activity Days	PM, Ozone	49,000,000	84,000,000	110,000,000	1,991,000,000
Lost School Days	Ozone	1,200,000	3,200,000	5,400,000	74,500,000
Lost Work Days	PM	8,000,000	13,000,000	17,000,000	313,000,000

*Data from Table 5-6, Environmental Protection Agency, The Benefits and Costs of the Clean Air Act: 1990 to 2020, February 2011, p.5-25.

**To estimate the cumulative life savings and health benefits of the 1990 amendments from 1990 to 2020, NRDC assumed a roughly linear growth rate to interpolate benefit estimates for each year from 1995--when EPA's Acid Rain Program Phase I began to secure the first benefits under the amendments--through 2010, and benefit estimates for each year from 2010 to 2020. These annual benefit estimates were then aggregated across the entire period.

The Clean Air Act continues to enjoy tremendous support from the American people, as well as our nation's health and medical professionals. A nationwide poll conducted by Public

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[58] See generally http://www.epa.gov/air/sect812/prospective2.html.

[59] See generally http://switchboard.nrdc.org/blogs/cangelides/the_1990_clean_air_act_will_sa.html.

Policy Polling and released by the NRDC reports how registered voters feel about U.S. House Members' actions to block public health safeguards.

- 64% favor "requiring stricter limits on the amount of smog that vehicles and industrial facilities release."

In a recent CNN poll conducted by the Opinion Research Corporation from April 9-10, 71% of adult Americans polled responded that the federal government should continue to provide funding to the EPA to enforce regulations on greenhouse gases and other environmental issues. This included 80% of respondents from the Midwest and 71% from the South.

Recent Congressional Attacks on Clean Air Safeguards Are Failing the Public

Today's hearing – and the example of the "farm dust" myth in general, more than any other in the 112th Congress, shows the extent to which some in Congress appear willing to ignore science, misrepresent facts and the law, and harm public health – all in order to carry out an agenda that favors industrial polluters more than farmers or all Americans.

Some members of Congress, like Senator Tim Johnson (D-S.D.) have had the courage and integrity to call bills like H.R. 1633 what they are, "ridiculous and an attempt to scare farmers."[60] But too many appear willing ignore forty years of EPA practice, the repeated statements of the EPA administrator, their colleagues, and the facts. These bills evince a concerted determination to weaken the Clean Air Act and force Americans to live with less protective clean air standards against industrial pollution.

The American people deserve better than to see these political favors for polluting interests branded as protecting the American farmer.

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[60] Darren Goode, *Caught in a Dust Storm on EPA bills*, POLITICO, Oct. 10, 2011 *available at* http://www.politico.com/news/stories/1011/65575.html (last visited Oct. 20, 2011).

The Myth of EPA as "Rogue" Agency

Some critics of EPA regulations have charged EPA with being a "rogue" agency. This overheated rhetorical indictment should be dismissed simply because it is leveled invariably when there is a disagreement over the agency's legal or policy decisions. But to examine the charge more fully, it's fair to say that it has been based upon two other claims that bear examination in the context of today's hearing: (1) that EPA is acting outside the scope of statutory authority conferred by Congress; and (2) that EPA is acting precipitously and the current administration is regulating at a much higher regulatory pace than prior administrations. Both of these claims are false.

First, EPA has acted within plain statutory authority in setting standards for coarse particle pollution. Section 109 of the Clean Air Act confers clear authority to set such standards, and the Agency has been following this statutory directive for over 40 years. Second, EPA critics have attacked any and all Agency action by arguing that the current administration is regulating at a much faster, heavier regulatory pace than prior administrations. For example, a November 22, 2010 editorial in the Wall Street Journal charged that the Obama EPA's regulatory output has outpaced the entire first term of the Clinton Administration implementing the just-enacted 1990 Clean Air Act Amendments. This charge and similar ones are demonstrably false.

EPA Administrator Lisa Jackson has already specifically refuted such charges in an October 14, 2010 letter to Congressmen Barton and Burgess:

> The pace of EPA's Clean Air Act regulatory work under this administration is actually not faster than the pace under either of the two previous administrations. In fact, EPA has finalized or proposed fewer Clean Air Act rules (87) over the past 21 months than in the first two years of either President George W. Bush's administration (146) or President Clinton's administration (115).

Further, in the particular context of coarse particle pollution standards, the Agency has reiterated time and time again that it is undertaking a study of these standards pursuant to the normal 5 year review process mandated by the Clean Air Act. EPA has gone to great lengths to dispel the myth of any intent to regulate "farm dust" and to educate members of congress on how the NAAQS-setting process works. EPA has never regulated farm dust, it has disavowed any intent to do so, and the agency has announced that it is not changing standards for coarse particle pollution. Legislation that aims to prevent EPA from regulating "farm dust" has no bearing on reality or the structure of the Clean Air Act.

STATE	FACILITY_NAME	ORISPL_CO	COUNTY	LATITUDE
AL	AMEA Sylacauga Plant	56018	Talladega	33.1661
AL	Ascend (Decatur Plant)	880041	Morgan	34.6339
AL	BP Amoco Chemical Company	880075	Morgan	34.64
AL	Barry	3	Mobile	31.0069
AL	Bowater Newsprint - Coosa Pines	54216	Talladega	33.3278
AL	Calhoun Power Company I, LLC	55409	Calhoun	33.5883
AL	Charles R Lowman	56	Washington	31.4858
AL	Colbert	47	Colbert	34.7439
AL	Decatur Energy Center	55292	Morgan	34.6292
AL	Discover	55138	Lee	32.5412
AL	E B Harris Generating Plant	7897	Autauga	32.3814
AL	E C Gaston	26	Shelby	33.2442
AL	Gadsden	7	Etowah	34.0128
AL	Gorgas	8	Walker	33.6446
AL	Greene County	10	Greene	32.6017
AL	Hillabee Energy Center	55411	Tallapoosa	33
AL	Hog Bayou Energy Center	55241	Mobile	30.7478
AL	International Paper-Courtland Mill	50245	Lawrence	34.735
AL	International Paper-Prattville Mill	52140	Autauga	32.4167
AL	International Paper-Riverdale Mill	54096	Dallas	32.425
AL	James H Miller Jr	6002	Jefferson	33.6319
AL	McIntosh (7063)	7063	Washington	31.2546
AL	McWilliams	533	Covington	31.4001
AL	MeadWestvaco Coated Board, LLC	54802	Russell	32.175
AL	Morgan Energy Center	55293	Morgan	34.6397
AL	Plant H. Allen Franklin	7710	Lee	32.6094
AL	SABIC Innovative Plastics - Burkville	7698	Lowndes	32.3102
AL	Tenaska Central Alabama Gen Station	55440	Autauga	32.6503
AL	Tenaska Lindsay Hill Generating Station	55271	Autauga	32.6514
AL	Theodore Cogeneration	7721	Mobile	30.5248
AL	US Steel (Fairfield Works)	50730	Jefferson	33.4833
AL	Washington County Cogen (Olin)	7697	Washington	31.2504
AL	Widows Creek	50	Jackson	34.8825
AR	Carl Bailey	202	Woodruff	35.2597
AR	Cecil Lynch	167	Pulaski	34.7535
AR	City Water & Light - City of Jonesboro	56505	Craighead	35.8481
AR	Dell Power Plant	55340	Mississippi	35.8619
AR	Flint Creek Power Plant	6138	Benton	36.2561
AR	Fulton	7825	Hempstead	33.6094
AR	Hamilton Moses	168	Saint Francis	34.9806
AR	Harry D. Mattison Power Plant	56328	Washington	36.1855
AR	Harvey Couch	169	Lafayette	33.3592
AR	Hot Spring Energy Facility	55418	Hot Spring	34.2963
AR	Hot Spring Power Co., LLC	55714	Hot Spring	34.4304
AR	Independence	6641	Independence	35.6733
AR	Lake Catherine	170	Hot Spring	34.4341

AR	McClellan	203	Ouachita	33.5648
AR	Oswald Generating Station	55221	Pulaski	34.5923
AR	Pine Bluff Energy Center	55075	Jefferson	34.2181
AR	Plum Point Energy Station	56456	Mississippi	35.6519
AR	Robert E Ritchie	173	Phillips	34.4629
AR	Thomas Fitzhugh	201	Franklin	35.4617
AR	Union Power Station	55380	Union	33.2961
AR	White Bluff	6009	Jefferson	34.4236
AZ	APS Saguaro Power Plant	118	Pinal	32.5517
AZ	APS West Phoenix Power Plant	117	Maricopa	33.4417
AZ	Agua Fria Generating Station	141	Maricopa	33.5542
AZ	Apache Station	160	Cochise	32.0619
AZ	Arlington Valley Energy Facility	55282	Maricopa	33.3417
AZ	Black Mountain Generating Station	56482	Mohave	35.0534
AZ	Cholla	113	Navajo	34.9394
AZ	Coolidge Generating Station	56948	Pinal	32.9175
AZ	Coronado Generating Station	6177	Apache	34.5778
AZ	De Moss Petrie Generating Station	124	Pima	32.2511
AZ	Desert Basin Generating Station	55129	Pinal	32.9042
AZ	Gila River Power Station	55306	Maricopa	32.9761
AZ	Griffith Energy Project	55124	Mohave	35.0517
AZ	Irvington Generating Station	126	Pima	32.16
AZ	Kyrene Generating Station	147	Maricopa	33.3544
AZ	Mesquite Generating Station	55481	Maricopa	33.344
AZ	Navajo Generating Station	4941	Coconino	36.9047
AZ	New Harquahala Generating Company, LLC	55372	Maricopa	33.4759
AZ	Ocotillo Power Plant	116	Maricopa	33.4225
AZ	Redhawk Generating Facility	55455	Maricopa	33.33
AZ	Santan	8068	Maricopa	33.3333
AZ	South Point Energy Center, LLC	55177	Mohave	34.8678
AZ	Springerville Generating Station	8223	Apache	34.3186
AZ	Sundance Power Plant	55522	Pinal	32.9285
AZ	Yucca Power Plant	120	Yuma	32.7214
CA	AES Alamitos	315	Los Angeles	33.7688
CA	AES Huntington Beach	335	Orange	33.6436
CA	AES Redondo Beach	356	Los Angeles	33.8504
CA	Agua Mansa Power	55951	San Bernardino	34.0414
CA	Almond Power Plant	7315	Stanislaus	37.5739
CA	Anaheim Combustion Turbine	7693	Orange	33.8539
CA	Barre Generating Station	56474	Orange	33.8073
CA	Blythe Energy	55295	Riverside	33.6157
CA	Broadway	420	Los Angeles	34.1263
CA	Cabrillo Power I Encina Power Station	302	San Diego	33.1408
CA	CalPeak Power - Border LLC	55510	San Diego	32.5622
CA	CalPeak Power - El Cajon LLC	55512	San Diego	32.7971
CA	CalPeak Power - Enterprise LLC	55513	San Diego	33.1221
CA	CalPeak Power - Panoche LLC	55508	Fresno	36.6531

CA	CalPeak Power - Vaca Dixon LLC	55499	Solano	38.3989
CA	Calpine Gilroy Cogen, LP	10034	Santa Clara	37.0001
CA	Calpine Sutter Energy Center	55112	Sutter	39.0531
CA	Canyon Power Plant	57027	Orange	33.8581
CA	Carson Cogeneration	7527	Sacramento	38.4461
CA	Carson Cogeneration Company	10169	Los Angeles	33.8759
CA	Center Generating Station	56475	Los Angeles	33.9297
CA	Chula Vista Energy Center	55540	San Diego	32.5914
CA	Coalinga Cogeneration Company	50131	Fresno	36.1807
CA	Colusa Generating Station	56532	Colusa	39.3648
CA	Contra Costa Generating Station	228	Contra Costa	38.0184
CA	Coolwater Generating Station	329	San Bernardino	34.8622
CA	Cosumnes Power Plant	55970	Sacramento	38.3461
CA	Creed Energy Center	55625	Solano	38.2419
CA	Delta Energy Center, LLC	55333	Contra Costa	38.0167
CA	Donald Von Raesfeld	56026	Santa Clara	37.3767
CA	El Cajon Energy Center	57001	San Diego	32.7971
CA	El Centro	389	Imperial	32.8022
CA	El Segundo	330	Los Angeles	33.9106
CA	Elk Hills Power	55400	Kern	35.2803
CA	Escondido Energy Center, LLC	55538	San Diego	33.1261
CA	Etiwanda Generating Station	331	San Bernardino	34.0911
CA	Feather River Energy Center	55847	Sutter	39.1088
CA	Fresno Cogeneration Partners, LP	10156	Fresno	36.6183
CA	Gateway Generating Station	56476	Contra Costa	38.0167
CA	Gilroy Energy Center, LLC	55810	Santa Clara	36.999
CA	Gilroy Energy Center, LLC for King City	10294	Monterey	36.225
CA	Glenarm	422	Los Angeles	34.1256
CA	Goose Haven Energy Center	55627	Solano	38.2271
CA	Grapeland Generating Station	56472	San Bernardino	34.09
CA	Grayson Power Plant	377	Los Angeles	34.1556
CA	Greenleaf One	10350	Sutter	39.05
CA	Hanford Energy Park Peaker	55698	Kings	36.2689
CA	Harbor Generating Station	399	Los Angeles	33.7856
CA	Haynes Generating Station	400	Los Angeles	33.7639
CA	Henrietta Peaker Plant	55807	Kings	36.2397
CA	High Desert Power Project	55518	San Bernardino	34.5953
CA	Indigo Generation Facility	55541	Riverside	33.9114
CA	Inland Empire Energy Center	55853	Riverside	33.7393
CA	Kings River Conservation District Malaga	56239	Fresno	36.6894
CA	La Paloma Generating Plant	55151	Kern	35.2956
CA	Lake	7987	Los Angeles	34.1775
CA	Lambie Energy Center	55626	Solano	38.2216
CA	Larkspur Energy Faciity	55542	San Diego	32.5672
CA	Long Beach Generating Station	341	Los Angeles	33.7641
CA	Los Esteros Critical Energy Fac	55748	Santa Clara	37.425
CA	Los Medanos Energy Center, LLC	55217	Contra Costa	38.03

CA	Magnolia	56046	Los Angeles	34.1788
CA	Malburg Generating Station	56041	Los Angeles	33.9983
CA	Mandalay Generating Station	345	Ventura	34.2072
CA	Metcalf Energy Center	55393	Santa Clara	37.2169
CA	Mira Loma Generating Station	56473	San Bernardino	34.0054
CA	Miramar Energy Facility	56232	San Diego	32.8769
CA	Morro Bay Power Plant, LLC	259	San Luis Obispo	35.3747
CA	Moss Landing	260	Monterey	36.8042
CA	Mountainview Generating Station	358	San Bernardino	34.0836
CA	NCPA Combustion Turbine Project #2	7449	San Joaquin	38.088
CA	Niland Gas Turbine Plant	56569	Imperial	33.2432
CA	North Island	10812	San Diego	32.705
CA	Olive	6013	Los Angeles	34.1775
CA	Orange Grove Project	56914	San Diego	33.359
CA	Ormond Beach Generating Station	350	Ventura	34.1292
CA	Otay Mesa Energy Center, LLC	55345	San Diego	32.5733
CA	Palomar Energy Center	55985	San Diego	33.1192
CA	Panoche Energy Center	56803	Fresno	36.6513
CA	Pastoria Energy Facility	55656	Kern	34.9556
CA	Pittsburg Generating Station (CA)	271	Contra Costa	38.0392
CA	Potrero Generating Station	273	San Francisco	37.7558
CA	Redding Power Plant	7307	Shasta	40.5083
CA	Ripon Generation Station	56135	Stanislaus	37.7315
CA	Riverside Energy Resource Center	56143	Riverside	33.9636
CA	Riverview Energy Center	55963	Contra Costa	38.0139
CA	Roseville Energy Park	56298	Placer	38.7926
CA	SCA Cogen II	7551	Sacramento	38.5306
CA	Sacramento Power Authority Cogen	7552	Sacramento	38.511
CA	Salinas River Cogeneration Company	50865	Monterey	35.9515
CA	Sargent Canyon Cogen Company	50864	Monterey	35.9359
CA	Scattergood Generating Station	404	Los Angeles	33.9175
CA	Starwood Power Midway, LLC	56639	Fresno	36.654
CA	Sunrise Power Company	55182	Kern	35.2097
CA	Tracy Peaker	55933	San Joaquin	37.7107
CA	Valley Gen Station	408	Los Angeles	34.2481
CA	Walnut Energy Center	56078	Stanislaus	37.4878
CA	Wellhead Power Gates, LLC	55875	Fresno	36.1522
CA	Wolfskill Energy Center	55855	Solano	38.2282
CA	Woodland Generation Station	7266	Stanislaus	37.6528
CA	Yuba City Energy Center	10349	Sutter	39.1365
CO	Arapahoe	465	Denver	39.67
CO	Arapahoe Combustion Turbine Facility	55200	Denver	39.6692
CO	Blue Spruce Energy Center	55645	Adams	39.7436
CO	Brush Power Projects	10682	Morgan	40.2415
CO	Cherokee	469	Adams	39.8034
CO	Comanche (470)	470	Pueblo	38.2081
CO	Craig	6021	Moffat	40.4627

CO	Fort Lupton Cogeneration Facility	50707	Weld	40.0979
CO	Fort St. Vrain	6112	Weld	40.2461
CO	Fountain Valley Power Plant	55453	El Paso	38.5569
CO	Frank Knutson Station	55505	Adams	39.9414
CO	Front Range Power Plant	55283	El Paso	38.6281
CO	Hayden	525	Routt	40.4856
CO	Lamar	508	Prowers	38.0921
CO	Limon Generating Station	55504	Lincoln	39.2038
CO	Manchief Generating Station	55127	Morgan	40.2179
CO	Martin Drake	492	El Paso	38.8244
CO	Nucla	527	Montrose	38.2387
CO	Pawnee	6248	Morgan	40.2217
CO	Rawhide Energy Station	6761	Larimer	40.8611
CO	Ray D Nixon	8219	El Paso	38.6306
CO	Rocky Mountain Energy Center	55835	Weld	40.0911
CO	Spindle Hill Energy Center	56445	Weld	40.0914
CO	Valmont	477	Boulder	40.0195
CO	Valmont Combustion Turbine Facility	55207	Boulder	40.0197
CO	Zuni	478	Denver	39.7369
CT	AES Thames	10675	New London	41.4282
CT	Alfred L Pierce Generating Station	6635	New Haven	41.4485
CT	Algonquin Power Windsor Locks, LLC	10567	Hartford	41.9227
CT	Branford	540	New Haven	41.2925
CT	Bridgeport Energy	55042	Fairfield	41.1692
CT	Bridgeport Harbor Station	568	Fairfield	41.1706
CT	Capitol District Energy Center	50498	Hartford	41.7639
CT	Cos Cob	542	Fairfield	41.0289
CT	Devon	544	New Haven	41.2083
CT	Franklin Drive	561	Litchfield	41.7994
CT	Fusion Paperboard Connecticut LLC	54657	New London	41.6242
CT	Kleen Energy Systems Project	56798	Middlesex	41.5551
CT	Lake Road Generating Company	55149	Windham	41.8736
CT	Middletown	562	Middlesex	41.5544
CT	Milford Power Company LLC	55126	New Haven	41.2239
CT	Montville	546	New London	41.4281
CT	New Haven Harbor	6156	New Haven	41.2836
CT	Norwalk Harbor Station	548	Fairfield	41.0732
CT	Norwich	581	New London	41.5269
CT	Pfizer	54236	New London	41.3319
CT	Pratt & Whitney, East Hartford	54605	Hartford	41.75
CT	ReEnergy Sterling Energy Facility	50736	Windham	41.7132
CT	South Meadow Station	563	Hartford	41.7495
CT	Torrington Terminal	565	Litchfield	41.7761
CT	Tunnel	557	New London	41.5553
CT	Wallingford Energy, LLC	55517	New Haven	41.4486
CT	Waterbury Generation	56629	New Haven	41.5444
CT	Waterside Power, LLC	56189	Fairfield	41.0372

DC	Benning Generation Station	603	District of Columbia	38.8994
DC	GSA Central Heating	880004	District of Columbia	38.8856
DE	Christiana Substation	591	New Castle	39.7302
DE	Delaware City	592	New Castle	39.5881
DE	Delaware City Refinery	52193	New Castle	39.5936
DE	Edge Moor	593	New Castle	39.7372
DE	Hay Road	7153	New Castle	39.7436
DE	Indian River	594	Sussex	38.5857
DE	McKee Run	599	Kent	39.1748
DE	NRG Energy Center Dover	10030	Kent	39.1467
DE	Van Sant	7318	Kent	39.15
DE	Warren F. Sam Beasley Pwr Station	7962	Kent	39.2798
DE	West Substation	597	New Castle	39.7283
FL	Anclote	8048	Pasco	28.1844
FL	Arvah B Hopkins	688	Leon	30.4522
FL	Auburndale Cogeneration Facility	54658	Polk	28.0542
FL	Auburndale Peaker Energy Center	55833	Polk	28.0534
FL	Avon Park	624	Highlands	27.5792
FL	Bayboro	627	Pinellas	27.7578
FL	Bayside Power Station	7873	Hillsborough	27.9072
FL	Big Bend	645	Hillsborough	27.7944
FL	Brandy Branch	7846	Duval	30.3206
FL	C D McIntosh Jr Power Plant	676	Polk	28.0809
FL	Cane Island	7238	Osceola	28.2764
FL	Cedar Bay Generating Co. LP	10672	Duval	30.4219
FL	Central Power & Lime	10333	Hernando	28.5814
FL	Charles Larsen Memorial Power Plant	675	Polk	28.0797
FL	Crist Electric Generating Plant	641	Escambia	30.5661
FL	Crystal River	628	Citrus	28.9594
FL	Curtis H. Stanton Energy Center	564	Orange	28.4836
FL	Cutler	610	Miami-Dade	25.6321
FL	Debary	6046	Volusia	28.9047
FL	Deerhaven	663	Alachua	29.7586
FL	Desoto County Energy Park	55422	DeSoto	27.2272
FL	Fort Myers	612	Lee	26.6967
FL	G E Turner	629	Volusia	28.8689
FL	Greenland Energy Center	56799	Duval	30.1603
FL	Hardee Power Station	50949	Hardee	27.6364
FL	Higgins	630	Pinellas	28.0037
FL	Hines Energy Complex	7302	Polk	27.7886
FL	Indian River (55318)	55318	Brevard	28.4933
FL	Indian River (683)	683	Brevard	28.4933
FL	Indiantown Cogeneration, LP	50976	Martin	27.0393
FL	Intercession City	8049	Osceola	28.2628
FL	J D Kennedy	666	Duval	30.3644
FL	J R Kelly	664	Alachua	29.6467
FL	Lake Cogeneration	54423	Lake	28.9158

FL	Lansing Smith Generating Plant	643	Bay	30.2689
FL	Lauderdale	613	Broward	26.0681
FL	Manatee	6042	Manatee	27.6058
FL	Martin	6043	Martin	27.0536
FL	Midulla Generating Station	7380	Hardee	27.6417
FL	Mulberry Cogeneration Facility	54426	Polk	27.8489
FL	Northside	667	Duval	30.4172
FL	Oleander Power Project	55286	Brevard	28.3661
FL	Orange Cogeneration Facility	54365	Polk	27.8708
FL	Orlando CoGen	54466	Orange	28.4422
FL	Osceola	55192	Osceola	28.1289
FL	Osprey Energy Center	55412	Polk	28.0525
FL	P L Bartow	634	Pinellas	27.8613
FL	Pasco Cogeneration	54424	Pasco	28.3744
FL	Polk	7242	Polk	27.7286
FL	Port Everglades	617	Broward	26.0856
FL	Putnam	6246	Putnam	29.6283
FL	Reedy Creek	7254	Orange	28.4272
FL	Ridge Generating Station	54529	Polk	28.0271
FL	Riviera	619	Palm Beach	26.7653
FL	Roy E Hansel Power Plant	672	Osceola	28.2908
FL	S O Purdom	689	Wakulla	30.1619
FL	Sanford	620	Volusia	28.8419
FL	Santa Rosa Energy Center	55242	Santa Rosa	30.5661
FL	Scholz Electric Generating Plant	642	Jackson	30.6689
FL	Seminole (136)	136	Putnam	29.7333
FL	Shady Hills	55414	Pasco	28.3665
FL	St. Johns River Power	207	Duval	30.4311
FL	Stanton A	55821	Orange	28.4881
FL	Stock Island	6584	Monroe	24.5636
FL	Suwannee River	638	Suwannee	30.3764
FL	Tiger Bay	7699	Polk	27.7447
FL	Tom G Smith	673	Palm Beach	26.6125
FL	Treasure Coast Energy Center	56400	Saint Lucie	27.3839
FL	Turkey Point	621	Miami-Dade	25.4356
FL	University of Florida	7345	Alachua	29.6397
FL	Vandolah Power Project	55415	Hardee	27.5242
FL	Vero Beach Municipal	693	Indian River	27.6311
FL	West County Energy Center	56407	Palm Beach	26.6986
GA	AL Sandersville	55672	Washington	33.1189
GA	Allen B Wilson Combustion Turbine Plant	6258	Burke	33.138
GA	Baconton	55304	Mitchell	31.3869
GA	Bowen	703	Bartow	34.1256
GA	Chattahoochee Energy Facility	7917	Heard	33.407
GA	Dahlberg (Jackson County)	7765	Jackson	34.0386
GA	Doyle Generating Facility	55244	Walton	33.8376
GA	Effingham County Power, LLC	55406	Effingham	32.2792

GA	Hammond	708	Floyd	34.2533
GA	Harllee Branch	709	Putnam	33.1942
GA	Hartwell Energy Facility	70454	Hart	34.3387
GA	Hawk Road Energy Facility	55141	Heard	33.3577
GA	Jack McDonough	710	Cobb	33.8244
GA	Kraft	733	Chatham	32.1486
GA	MPC Generating, LLC	7764	Walton	33.8122
GA	McIntosh (6124)	6124	Effingham	32.3558
GA	McIntosh Combined Cycle Facility	56150	Effingham	32.3478
GA	McManus	715	Glynn	31.2125
GA	Mid-Georgia Cogeneration	55040	Houston	32.4853
GA	Mitchell (GA)	727	Dougherty	31.4444
GA	Murray Energy Facility	55382	Murray	34.7094
GA	Robins	7348	Houston	32.5806
GA	SEGCO Bainbridge	56015	Decatur	30.9111
GA	Scherer	6257	Monroe	33.0583
GA	Sewell Creek Energy	7813	Polk	33.9486
GA	Smarr Energy Facility	7829	Monroe	32.9856
GA	Sowega Power Project	7768	Mitchell	31.3869
GA	Talbot Energy Facility	7916	Talbot	32.5892
GA	Tenaska Georgia Generating Station	55061	Heard	33.3516
GA	Walton County Power, LLC	55128	Walton	33.8147
GA	Wansley (6052)	6052	Heard	33.4124
GA	Wansley (7946)	7946	Heard	33.4082
GA	Washington County Power, LLC	55332	Washington	33.0917
GA	West Georgia Generating Facility	55267	Upson	32.911
GA	Yates	728	Coweta	33.4622
IA	Ames	1122	Story	42.0247
IA	Burlington (IA)	1104	Des Moines	40.7412
IA	Centerville	1105	Appanoose	40.7478
IA	Dayton Avenue Substation	6463	Story	42.0269
IA	Dubuque	1046	Dubuque	42.506
IA	Earl F Wisdom	1217	Clay	43.1606
IA	Electrifarm	6063	Black Hawk	42.4407
IA	Emery Station	8031	Cerro Gordo	43.094
IA	Exira Station	56013	Audubon	41.5131
IA	Fair Station	1218	Muscatine	41.4569
IA	George Neal North	1091	Woodbury	42.2996
IA	George Neal South	7343	Woodbury	42.3022
IA	Greater Des Moines Energy Center	7985	Polk	41.5563
IA	Grinnell	7137	Poweshiek	41.7529
IA	Lansing	1047	Allamakee	43.3359
IA	Lime Creek	7155	Cerro Gordo	43.2481
IA	Louisa	6664	Louisa	41.3153
IA	Marshalltown CTs	1068	Marshall	42.0474
IA	Milton L Kapp	1048	Clinton	41.8081
IA	Muscatine	1167	Muscatine	41.3917

IA	Ottumwa	6254	Wapello	41.0961
IA	Pella	1175	Marion	41.3981
IA	Pleasant Hill Energy Center	7145	Polk	41.5572
IA	Prairie Creek	1073	Linn	41.9439
IA	Riverside (1081)	1081	Scott	41.5404
IA	Streeter Station	1131	Black Hawk	42.5267
IA	Summit Lake	1206	Union	41.1141
IA	Sutherland	1077	Marshall	42.0472
IA	Sycamore Combustion Turbine	8029	Polk	41.6722
IA	Walter Scott Jr. Energy Center	1082	Pottawattamie	41.18
ID	Bennett Mountain Power Project	55733	Elmore	43.1747
ID	Evander Andrews Power Complex	7953	Elmore	43.1794
ID	Rathdrum Combustion Turbine Project	7456	Kootenai	47.8034
ID	Rathdrum Power, LLC	55179	Kootenai	47.7861
IL	Alsey Station	7818	Scott	39.5606
IL	Archer Daniels Midland Co.	10865	Macon	39.8675
IL	Archer Daniels Midland Co. - Peoria	10866	Peoria	40.6776
IL	Aurora	55279	DuPage	41.8151
IL	Aventine Renewable Energy, Inc.	880086	Tazewell	40.555
IL	Baldwin Energy Complex	889	Randolph	38.205
IL	Calumet Energy Team, LLC	55296	Cook	41.6835
IL	Coffeen	861	Montgomery	39.0586
IL	Cordova Energy Company	55188	Rock Island	41.7146
IL	Corn Products International, Inc.	54556	Cook	41.7775
IL	Crawford	867	Cook	41.8278
IL	Crete Energy Park	55253	Will	41.4297
IL	Dallman	963	Sangamon	39.7539
IL	Duck Creek	6016	Fulton	40.4663
IL	Duke Energy Lee, II LLC	55236	Lee	41.8287
IL	E D Edwards	856	Peoria	40.5958
IL	Elgin Energy Center	55438	Cook	41.9997
IL	Elwood Energy Facility	55199	Will	41.4388
IL	Equistar Tuscola Plant	55245	Douglas	39.7983
IL	Exxonmobil Oil Corporation	50627	Will	41.4167
IL	Factory Gas Turbine	8016	Sangamon	39.8266
IL	Fisk	886	Cook	41.8508
IL	Flint Hills Resources, - Joliet Plant	880089	Will	41.4417
IL	Freedom Power Project	7842	Fayette	39.1025
IL	Geneva Energy, LLC	55174	Cook	41.5001
IL	Gibson City Power Plant	55201	Ford	40.4705
IL	Goose Creek Power Plant	55496	Piatt	40.1083
IL	Grand Tower	862	Jackson	37.6578
IL	Havana	891	Mason	40.2797
IL	Hennepin Power Station	892	Putnam	41.3017
IL	Holland Energy Facility	55334	Shelby	39.2242
IL	Hutsonville	863	Crawford	39.1333
IL	Interstate	7425	Sangamon	39.8233

IL	Joliet 29	384	Will	41.4947
IL	Joliet 9	874	Will	41.4931
IL	Joppa Steam	887	Massac	37.2103
IL	Kendall Energy Facility	55131	Kendall	41.4797
IL	Kincaid Station	876	Christian	39.5906
IL	Kinmundy Power Plant	55204	Marion	38.7619
IL	LSP University Park, LLC	55640	Will	41.4426
IL	Lemont Refinery	880076	Will	41.6439
IL	Lincoln Generating Facility	55222	Will	41.3937
IL	MEPI Gt Facility	7858	Massac	37.2175
IL	Marathon Petroleum Company LP	880088	Crawford	39
IL	Marion	976	Williamson	37.6206
IL	Meredosia	864	Morgan	39.8194
IL	Morris Cogeneration, LLC	55216	Grundy	41.4092
IL	NRG Rockford Energy Center	55238	Winnebago	42.2403
IL	NRG Rockford II Energy Center	55936	Winnebago	42.2383
IL	Newton	6017	Jasper	38.9361
IL	Pinckneyville Power Plant	55202	Perry	38.1114
IL	Powerton	879	Tazewell	40.5408
IL	Raccoon Creek Power Plant	55417	Clay	38.6996
IL	Rocky Road Power, LLC	55109	Kane	42.0931
IL	Shelby County	55237	Shelby	39.2794
IL	Southeast Chicago Energy Project	55281	Cook	41.7181
IL	Tate & Lyle	10867	Macon	39.8466
IL	Tilton Power Station	7760	Vermilion	40.1063
IL	University Park Energy	55250	Will	41.4405
IL	Venice	913	Madison	38.6642
IL	Vermilion Power Station	897	Vermilion	40.1781
IL	Waukegan	883	Lake	42.3833
IL	Will County	884	Will	41.6334
IL	Wood River Power Station	898	Madison	38.8639
IL	Wood River Refinery	880067	Madison	38.8375
IL	Zion Energy Center	55392	Lake	42.4776
IN	A B Brown Generating Station	6137	Posey	37.9053
IN	Alcoa Allowance Management Inc	6705	Warrick	37.915
IN	Anderson	7336	Madison	40.0529
IN	BP Whiting Business Unit	52130	Lake	41.6703
IN	Bailly Generating Station	995	Porter	41.6433
IN	Broadway Avenue Generating Station	1011	Vanderburgh	37.9694
IN	C. C. Perry K Steam Plant	992	Marion	39.7622
IN	Cayuga	1001	Vermillion	39.9239
IN	Clifty Creek	983	Jefferson	38.7383
IN	Connersville Peaking Station	1002	Fayette	39.6561
IN	Dean H Mitchell Generating Station	996	Lake	41.6394
IN	Duke Energy Vermillion, II LLC	55111	Vermillion	39.9208
IN	Edwardsport	1004	Knox	38.8067
IN	F B Culley Generating Station	1012	Warrick	37.91

IN	Frank E Ratts	1043	Pike	38.5201
IN	Georgetown Substation	7759	Marion	39.9022
IN	Gibson	6113	Gibson	38.3722
IN	Harding Street Station (EW Stout)	990	Marion	39.7119
IN	Henry County Generating Station	7763	Henry	39.9528
IN	Hoosier Energy Lawrence Co Station	7948	Lawrence	38.8003
IN	IPL Eagle Valley Generating Station	991	Morgan	39.4851
IN	Lawrenceburg Energy Facility	55502	Dearborn	39.0913
IN	Merom	6213	Sullivan	39.0694
IN	Michigan City Generating Station	997	LaPorte	41.7203
IN	Mittal Steel USA - Indiana Harbor East	10474	Lake	41.68
IN	Montpelier Electric Gen Station	55229	Wells	40.6206
IN	New Energy Corp	880087	Saint Joseph	41.6552
IN	Noblesville	1007	Hamilton	40.0969
IN	Petersburg	994	Pike	38.5267
IN	Portside Energy	55096	Porter	41.6317
IN	Purdue University-Wade Utility	50240	Tippecanoe	40.4172
IN	R Gallagher	1008	Floyd	38.2636
IN	R M Schahfer Generating Station	6085	Jasper	41.2175
IN	Richmond (IN)	7335	Wayne	39.8383
IN	Rockport	6166	Spencer	37.9256
IN	State Line Generating Station (IN)	981	Lake	41.7072
IN	Sugar Creek Generating Station	55364	Vigo	39.3922
IN	Tanners Creek	988	Dearborn	39.0831
IN	US Steel Corp - Gary Works	50733	Lake	41.6133
IN	Wabash River Gen Station	1010	Vigo	39.53
IN	Wheatland Generating Facility LLC	55224	Knox	38.6716
IN	Whitewater Valley	1040	Wayne	39.8028
IN	Whiting Clean Energy, Inc.	55259	Lake	41.6739
IN	Worthington Generation	55148	Greene	39.0717
KS	Chanute 2	1268	Neosho	37.6953
KS	Cimarron River	1230	Seward	37.1611
KS	Coffeyville	1271	Montgomery	37.0456
KS	East 12th Street	7013	Cowley	37.2376
KS	Emporia Energy Center	56502	Lyon	38.4464
KS	Fort Dodge aka Judson Large	1233	Ford	37.7328
KS	Garden City	1336	Finney	37.9703
KS	Gordon Evans Energy Center	1240	Sedgwick	37.7903
KS	Great Bend Station aka Arthur Mullergren	1235	Barton	38.41
KS	Holcomb	108	Finney	37.9306
KS	Hutchinson Energy Center	1248	Reno	38.0906
KS	Jeffrey Energy Center	6068	Pottawatomie	39.2825
KS	La Cygne	1241	Linn	38.3472
KS	Lawrence Energy Center	1250	Douglas	39.0072
KS	McPherson Municipal Power Plant #3	7515	McPherson	38.3864
KS	Murray Gill Energy Center	1242	Sedgwick	37.5956
KS	Nearman Creek	6064	Wyandotte	39.1714

KS	Neosho Energy Center	1243	Labette	37.3062
KS	Osawatomie Generating Station	7928	Miami	38.5325
KS	Quindaro	1295	Wyandotte	39.1486
KS	Riverton	1239	Cherokee	37.0719
KS	Tecumseh Energy Center	1252	Shawnee	39.0522
KS	West Gardner Generating Station	7929	Johnson	38.7878
KY	Big Sandy	1353	Lawrence	38.1707
KY	Bluegrass Generation Company, LLC	55164	Oldham	38.3902
KY	Cane Run	1363	Jefferson	38.1828
KY	Coleman	1381	Hancock	37.9628
KY	D B Wilson	6823	Ohio	37.4497
KY	DTE Calvert City, LLC	55308	Marshall	37.0467
KY	E W Brown	1355	Mercer	37.7889
KY	East Bend	6018	Boone	38.9031
KY	Elmer Smith	1374	Daviess	37.7958
KY	Ghent	1356	Carroll	38.7497
KY	Green River	1357	Muhlenberg	37.3636
KY	H L Spurlock	6041	Mason	38.7
KY	HMP&L Station 2	1382	Henderson	37.6472
KY	John S. Cooper	1384	Pulaski	37
KY	Marshall	55232	Marshall	37.0286
KY	Mill Creek	1364	Jefferson	38.0531
KY	Paddy's Run	1366	Jefferson	38.2147
KY	Paducah Power Systems Plant 1	56556	McCracken	37.0339
KY	Paradise	1378	Muhlenberg	37.2608
KY	R D Green	6639	Webster	37.6467
KY	Riverside Generating Company	55198	Lawrence	38.1933
KY	Robert Reid	1383	Webster	37.6467
KY	Shawnee	1379	McCracken	37.1517
KY	Smith Generating Facility	54	Clark	37.8824
KY	Trimble County	6071	Trimble	38.5847
KY	Tyrone	1361	Woodford	38.0478
KY	Wickliffe Paper Company	880065	Ballard	36.9461
KY	William C. Dale	1385	Clark	37.8807
LA	Acadia Power Station	55173	Acadia	30.4284
LA	Arsenal Hill Power Plant	1416	Caddo	32.5181
LA	Bayou Cove Peaking Power Plant	55433	Acadia	30.2825
LA	Big Cajun 1	1464	Pointe Coupee	30.6736
LA	Big Cajun 2	6055	Pointe Coupee	30.7261
LA	Brame Energy Center	6190	Rapides	31.395
LA	Calcasieu Plant	55165	Calcasieu	30.1603
LA	Carville Energy Center	55404	Iberville	30.2292
LA	Coughlin Power Station	1396	Evangeline	30.8442
LA	D G Hunter	6558	Rapides	31.321
LA	Doc Bonin	1443	Lafayette	30.2368
LA	Dolet Hills Power Station	51	De Soto	32.0306
LA	Hargis-Hebert Electric Generating Statio	56283	Lafayette	30.1694

LA	Houma	1439	Terrebonne	29.5808
LA	Lieberman Power Plant	1417	Caddo	32.7047
LA	Little Gypsy	1402	Saint Charles	30.0033
LA	Louisiana 1	1391	East Baton Rouge	30.4903
LA	Michoud	1409	Orleans	30.0081
LA	Morgan City Electrical Gen Facility	1449	Saint Mary	29.6916
LA	Nelson Industrial Steam Company	50030	Calcasieu	30.2861
LA	Ninemile Point	1403	Jefferson	29.9472
LA	Ouachita Plant	55467	Ouachita	32.7056
LA	Perryville Power Station	55620	Ouachita	32.6914
LA	Plaquemine Cogen Facility	55419	Iberville	30.3215
LA	R S Cogen	55117	Calcasieu	30.221
LA	R S Nelson	1393	Calcasieu	30.2861
LA	Sterlington	1404	Ouachita	32.7047
LA	T J Labbe Electric Generating Station	56108	Lafayette	30.2554
LA	Taft Cogeneration Facility	55089	Saint Charles	29.9861
LA	Teche Power Station	1400	Saint Mary	29.8223
LA	Waterford 1 & 2	8056	Saint Charles	29.9994
LA	Willow Glen	1394	Iberville	30.2743
MA	ANP Bellingham Energy Company, LLC	55211	Norfolk	42.1113
MA	ANP Blackstone Energy Company, LLC	55212	Worcester	42.0575
MA	Bellingham	10307	Norfolk	42.0925
MA	Berkshire Power	55041	Hampden	42.0476
MA	Blackstone	1594	Middlesex	42.3636
MA	Brayton Point	1619	Bristol	41.7125
MA	Canal Station	1599	Barnstable	41.7694
MA	Cleary Flood	1682	Bristol	41.8653
MA	Dartmouth Power	52026	Bristol	41.6728
MA	Deer Island Treatment	10823	Suffolk	42.3497
MA	Dighton	55026	Bristol	41.8312
MA	Doreen	1631	Berkshire	42.4431
MA	Fore River Station	55317	Norfolk	42.2417
MA	Framingham Station	1586	Middlesex	42.2672
MA	General Electric Aircraft	10029	Essex	42.45
MA	Kendall Square	1595	Middlesex	42.3633
MA	Kneeland Station	880023	Suffolk	42.35
MA	L'Energia Energy Center	54586	Middlesex	42.6308
MA	Lowell Cogeneration Company	10802	Middlesex	42.64
MA	MASSPOWER	10726	Hampden	42.156
MA	MIT Central Utility Plant	54907	Middlesex	42.3611
MA	Medway Station	1592	Norfolk	42.1364
MA	Milford Power, LP	54805	Worcester	42.1292
MA	Millennium Power Partners	55079	Worcester	42.1127
MA	Mount Tom	1606	Hampden	42.2814
MA	Mystic	1588	Middlesex	42.3917
MA	New Boston	1589	Suffolk	42.3406
MA	Pittsfield Generating	50002	Berkshire	42.4564

MA	Potter	1660	Norfolk	42.235
MA	Salem Harbor	1626	Essex	42.5267
MA	Somerset	1613	Bristol	41.737
MA	South Boston Combustion Turbines	10176	Suffolk	42.3414
MA	Stony Brook	6081	Hampden	42.1977
MA	Waters River	1678	Essex	42.5428
MA	West Springfield	1642	Hampden	42.0956
MA	Woodland Road	1643	Berkshire	42.3362
MD	AES Warrior Run	10678	Allegany	39.5944
MD	Brandon Shores	602	Anne Arundel	39.1792
MD	C P Crane	1552	Baltimore	39.3269
MD	Chalk Point	1571	Prince George's	38.5444
MD	Dickerson	1572	Montgomery	39.2086
MD	Gould Street	1553	Baltimore (City)	39.2661
MD	Herbert A Wagner	1554	Anne Arundel	39.1781
MD	Luke Paper Company	50282	Allegany	39.4722
MD	Morgantown	1573	Charles	38.3592
MD	Panda Brandywine	54832	Prince George's	38.6681
MD	Perryman	1556	Harford	39.4422
MD	R. Paul Smith Power Station	1570	Washington	39.595
MD	Riverside	1559	Baltimore	39.2369
MD	Rock Springs Generating Facility	7835	Cecil	39.7183
MD	Severstal Sparrows Point LLC	10485	Baltimore	39.2135
MD	Vienna	1564	Dorchester	38.4878
MD	Westport	1560	Baltimore (City)	39.27
ME	Androscoggin Energy	55031	Franklin	44.5047
ME	Bucksport Clean Energy	50243	Hancock	44.5739
ME	Maine Independence Station	55068	Penobscot	44.8236
ME	Rumford Power	55100	Oxford	44.5303
ME	Westbrook Energy Center	55294	Cumberland	43.6576
ME	William F Wyman	1507	Cumberland	43.75
MI	48th Street Peaking Station	7258	Allegan	42.7553
MI	B C Cobb	1695	Muskegon	43.2542
MI	Belle River	6034	Saint Clair	42.7748
MI	Cadillac Renewable Energy	54415	Wexford	44.2634
MI	Conners Creek	1726	Wayne	42.3597
MI	DTE East China	55718	Saint Clair	42.774
MI	DTE Pontiac North LLC	10111	Oakland	42.6564
MI	Dan E Karn	1702	Bay	43.6425
MI	Dearborn Industrial Generation	55088	Wayne	42.3026
MI	Delray	1728	Wayne	42.2947
MI	Eckert Station	1831	Ingham	42.7183
MI	Endicott Generating	4259	Hillsdale	42.0317
MI	Erickson	1832	Eaton	42.6919
MI	Genesee Power Station	54751	Genesee	43.0841
MI	Graphic Packaging International, Inc.	10698	Kalamazoo	42.3049
MI	Grayling Generating Station	10822	Crawford	44.6062

MI	Greenwood	6035	Saint Clair	43.1056
MI	Hancock Peakers	1730	Oakland	42.5497
MI	Harbor Beach	1731	Huron	43.8519
MI	J B Sims	1825	Ottawa	43.0722
MI	J C Weadock	1720	Bay	43.6425
MI	J H Campbell	1710	Ottawa	42.9103
MI	J R Whiting	1723	Monroe	41.7917
MI	Jackson MI Facility	55270	Jackson	42.2488
MI	James De Young	1830	Ottawa	42.7956
MI	Kalamazoo River Generating Station	55101	Kalamazoo	42.2797
MI	Kalkaska Ct Project #1	7984	Kalkaska	44.6889
MI	Livingston Generating Station	55102	Otsego	45.0291
MI	Michigan Power Limited Partnership	54915	Mason	43.94
MI	Midland Cogeneration Venture	10745	Midland	43.5861
MI	Mistersky	1822	Wayne	42.3038
MI	Monroe	1733	Monroe	41.8917
MI	New Covert Generating Project	55297	Van Buren	42.3231
MI	Otsego Paper, Inc.	55799	Allegan	42.4641
MI	Presque Isle	1769	Marquette	46.5789
MI	Renaissance Power	55402	Montcalm	43.1864
MI	River Rouge	1740	Wayne	42.2733
MI	Shiras	1843	Marquette	46.5314
MI	St. Clair	1743	Saint Clair	42.7625
MI	Sumpter Plant	7972	Wayne	42.167
MI	T B Simon Power Plant	10328	Ingham	42.7178
MI	TES Filer City Station	50835	Manistee	44.217
MI	The Dow Chemical Company	880031	Midland	43.6025
MI	Thetford	1719	Genesee	43.1568
MI	Trenton Channel	1745	Wayne	42.1236
MI	University of Michigan	880045	Washtenaw	42.2808
MI	Wyandotte	1866	Wayne	42.2081
MI	Zeeland Generating Station	55087	Ottawa	42.82
MN	Allen S King	1915	Washington	45.03
MN	Black Dog	1904	Dakota	44.8108
MN	Blue Lake Generating Plant	8027	Scott	44.7855
MN	Boswell Energy Center	1893	Itasca	47.2603
MN	Cambridge Station	2038	Isanti	45.601
MN	Cannon Falls Energy Center	56241	Goodhue	44.5364
MN	Cascade Creek	6058	Olmsted	44.0322
MN	Cottage Grove Cogeneration	55010	Washington	44.7956
MN	Elk River	2039	Sherburne	45.2958
MN	Faribault Energy Park	56164	Rice	44.3353
MN	Fibrominn Biomass Power Plant	55867	Swift	4S.2996
MN	Fox Lake	1888	Martin	43.6728
MN	Hibbard Energy Center	1897	Saint Louis	46.7356
MN	High Bridge	1912	Ramsey	44.9331
MN	Hoot Lake	1943	Otter Tail	46.29

MN	Hutchinson - Plant 2	6358	McLeod	44.8889
MN	Lakefield Junction Generating	7925	Martin	43.7989
MN	Laskin Energy Center	1891	Saint Louis	47.5306
MN	Mankato Energy Center	56104	Blue Earth	44.1965
MN	Minnesota River Station	7844	Carver	44.795
MN	Northeast Station	1961	Mower	43.7014
MN	Pleasant Valley Station	7843	Mower	43.7997
MN	Riverside (1927)	1927	Hennepin	45.0203
MN	Sherburne County	6090	Sherburne	45.3792
MN	Silver Lake	2008	Olmsted	44.0281
MN	Solway Plant	7947	Beltrami	47.5444
MN	Taconite Harbor Energy Center	10075	Cook	47.5314
MO	Asbury	2076	Jasper	37.3596
MO	Audrain Power Plant	55234	Audrain	39.3092
MO	Blue Valley	2132	Jackson	39.0919
MO	Chamois Power Plant	2169	Osage	38.6853
MO	Chillicothe	2122	Livingston	39.784
MO	Columbia	2123	Boone	38.9658
MO	Columbia Energy Center (MO)	55447	Boone	39.0183
MO	Dogwood Energy Facility	55178	Cass	38.7931
MO	Empire District Elec Co Energy Ctr	6223	Jasper	37.1385
MO	Essex Power Plant	7749	Stoddard	36.8678
MO	Fairgrounds	2082	Cole	38.5935
MO	Greenwood Energy Center	6074	Jackson	38.8615
MO	Hawthorn	2079	Jackson	39.1306
MO	Higginsville Municipal Power Plant	2131	Lafayette	39.0721
MO	Holden Power Plant	7848	Johnson	38.7538
MO	Howard Bend	2102	Saint Louis	38.6818
MO	Iatan	6065	Platte	39.4472
MO	James River	2161	Greene	37.1086
MO	John Twitty Energy Center	6195	Greene	37.1519
MO	Labadie	2103	Franklin	38.5583
MO	Lake Road	2098	Buchanan	39.7246
MO	McCartney Generating Station	7903	Greene	37.2479
MO	Meramec	2104	Saint Louis	38.4017
MO	Mexico	6650	Audrain	39.1481
MO	Moberly	6651	Randolph	39.4244
MO	Montrose	2080	Henry	38.3108
MO	Moreau	6652	Cole	38.5553
MO	New Madrid Power Plant	2167	New Madrid	36.5147
MO	Nodaway Power Plant	7754	Nodaway	40.2877
MO	Northeast Generating Station	2081	Jackson	39.1231
MO	Peno Creek Energy Center	7964	Pike	39.3531
MO	Ralph Green Station	2092	Cass	38.7865
MO	Rush Island	6155	Jefferson	38.1306
MO	Sibley	2094	Jackson	39.1778
MO	Sikeston	6768	Scott	36.8791

MO	Sioux	2107	Saint Charles	38.9158
MO	South Harper Peaking Facility	56151	Cass	38.6803
MO	St. Francis Power Plant	7604	Dunklin	36.5852
MO	State Line (MO)	7296	Jasper	37.0659
MO	Thomas Hill Energy Center	2168	Randolph	39.5531
MO	Viaduct	2096	Cape Girardeau	37.2572
MS	Attala Generating Plant	55220	Attala	33.0142
MS	Batesville Generation Facility	55063	Panola	34.3345
MS	Baxter Wilson	2050	Warren	32.2831
MS	Caledonia	55197	Lowndes	33.6464
MS	Chevron Cogenerating Station	2047	Jackson	30.34
MS	Choctaw County Gen	55706	Choctaw	33.2881
MS	Choctaw Gas Generation, LLC	55694	Choctaw	33.3806
MS	Crossroads Energy Center (CPU)	55395	Coahoma	34.183
MS	Daniel Electric Generating Plant	6073	Jackson	30.5335
MS	Delta	2051	Bolivar	33.7947
MS	Gerald Andrus	8054	Washington	33.3503
MS	Hinds Energy Facility	55218	Hinds	32.3781
MS	Kemper County	7960	Kemper	32.7976
MS	Magnolia Facility	55451	Benton	34.8358
MS	Moselle Generating Plant	2070	Jones	31.5289
MS	Natchez	2052	Adams	31.5987
MS	R D Morrow Senior Generating Plant	6061	Lamar	31.2194
MS	Red Hills Generation Facility	55076	Choctaw	33.3761
MS	Rex Brown	2053	Hinds	32.3564
MS	Silver Creek Generating Plant	7988	Jefferson Davis	31.6004
MS	Southaven Combined Cycle	55269	DeSoto	34.9939
MS	Sweatt Electric Generating Plant	2048	Lauderdale	32.2925
MS	Sylvarena Generating Plant	7989	Smith	31.9842
MS	Watson Electric Generating Plant	2049	Harrison	30.4408
MT	Colstrip	6076	Rosebud	45.8831
MT	Culbertson Station	56606	Roosevelt	48.1238
MT	Glendive Generating Station	2176	Dawson	47.0539
MT	Hardin Generating Station	55749	Big Horn	45.7578
MT	J E Corette	2187	Yellowstone	45.7747
MT	Lewis & Clark	6089	Richland	47.6788
MT	Mill Creek Generating Station	56908	Deer Lodge	46.1066
NC	Asheville	2706	Buncombe	35.4714
NC	Belews Creek	8042	Stokes	36.2811
NC	Blewett	2707	Anson	34.9815
NC	Blue Ridge Paper Products Inc.	50244	Haywood	35.535
NC	Buck	2720	Rowan	35.7133
NC	Butler-Warner Generation Plant	1016	Cumberland	35.0986
NC	CPI USA North Carolina Roxboro	10379	Person	36.435
NC	CPI USA North Carolina Southport	10378	Brunswick	33.9444
NC	Cape Fear	2708	Chatham	35.595
NC	Cliffside	2721	Cleveland	35.22

NC	Coastal Carolina Clean Power LLC	10381	Duplin	35.0225
NC	Craven County Wood Energy	10525	Craven	35.1285
NC	Dan River	2723	Rockingham	36.4862
NC	Domtar Paper Company LLC - Plymouth	50189	Martin	35.8628
NC	Edgecombe Genco, LLC	10384	Edgecombe	36.0378
NC	Elizabethtown Power	10380	Bladen	34.6474
NC	G G Allen	2718	Gaston	35.1897
NC	H F Lee Steam Electric Plant	2709	Wayne	35.3775
NC	KapStone Paper and Packaging Corp	50254	Halifax	36.4769
NC	L V Sutton	2713	New Hanover	34.2824
NC	Lincoln	7277	Lincoln	35.4317
NC	Lumberton Power	10382	Robeson	34.59
NC	Marshall	2727	Catawba	35.5975
NC	Mayo	6250	Person	36.5278
NC	NCEMC Anson Plant	56249	Anson	34.9708
NC	NCEMC Hamlet Plant	56292	Richmond	34.8422
NC	Plant Rowan County	7826	Rowan	35.7325
NC	Richmond County Plant	7805	Richmond	34.8422
NC	Riverbend	2732	Gaston	35.36
NC	Rockingham County Combustion Turbine	55116	Rockingham	36.3297
NC	Rosemary Power Station	50555	Halifax	36.4525
NC	Roxboro	2712	Person	36.4833
NC	University of NC Chapel Hill	54276	Orange	35.9069
NC	W H Weatherspoon	2716	Robeson	34.5889
NC	Westmoreland Partners Roanoke Valley I	54035	Halifax	36.4364
NC	Westmoreland Partners Roanoke Valley II	54755	Halifax	36.4364
NC	Weyerhaeuser - New Bern	50188	Craven	35.2081
ND	Antelope Valley	6469	Mercer	47.3714
ND	Coal Creek	6030	McLean	47.3761
ND	Coyote	8222	Mercer	47.2217
ND	Leland Olds	2817	Mercer	47.2819
ND	Milton R Young	2823	Oliver	47.0664
ND	R M Heskett	2790	Morton	46.8669
ND	Stanton	2824	Mercer	47.2872
NE	Beatrice	8000	Gage	40.3286
NE	C W Burdick	2241	Hall	40.9228
NE	Canaday	2226	Gosper	40.6941
NE	Cass County Station	55972	Cass	40.9472
NE	Gerald Gentleman Station	6077	Lincoln	41.0808
NE	Gerald Whelan Energy Center	60	Adams	40.5806
NE	Lon D Wright Power Plant	2240	Dodge	41.4275
NE	Nebraska City Station	6096	Otoe	40.6215
NE	North Omaha Station	2291	Douglas	41.3297
NE	Platte	59	Hall	40.8538
NE	Rokeby	6373	Lancaster	40.7316
NE	Sarpy County Station	2292	Sarpy	41.1706
NE	Sheldon	2277	Lancaster	40.5589

NE	Terry Bundy Generating Station	7887	Lancaster	40.9108
NH	Granite Ridge Energy	55170	Rockingham	42.9043
NH	Lost Nation	2362	Coos	44.5942
NH	Merrimack	2364	Merrimack	43.1411
NH	NAEA Newington Energy LLC	55661	Rockingham	43.1047
NH	Newington	8002	Rockingham	43.0974
NH	Schiller	2367	Rockingham	43.0978
NH	White Lake	2369	Carroll	43.8478
NJ	AES Red Oak	55239	Middlesex	40.4481
NJ	B L England	2378	Cape May	39.29
NJ	Bayonne Plant Holding, LLC	50497	Hudson	40.6543
NJ	Bergen	2398	Bergen	40.8375
NJ	Burlington Generating Station	2399	Burlington	40.0753
NJ	Camden Plant Holding, LLC	10751	Camden	39.9175
NJ	Carlls Corner Energy Center	2379	Cumberland	39.4547
NJ	Carneys Point	10566	Salem	39.6928
NJ	Cedar Energy Station	2380	Ocean	39.6893
NJ	Cumberland Energy Center	5083	Cumberland	39.3757
NJ	Deepwater	2384	Salem	39.6831
NJ	E F Kenilworth, Inc.	10805	Union	40.6781
NJ	EFS Parlin Holdings, LLC	50799	Middlesex	40.4586
NJ	Edison	2400	Middlesex	40.4911
NJ	Elmwood Park Power - LLC	50852	Bergen	40.9056
NJ	Essex	2401	Essex	40.7375
NJ	Forked River	7138	Ocean	39.8154
NJ	Gilbert Generating Station	2393	Hunterdon	40.5661
NJ	Howard M Down	2434	Cumberland	39.4889
NJ	Hudson Generating Station	2403	Hudson	40.7478
NJ	Kearny Generating Station	2404	Hudson	40.7375
NJ	Lakewood Cogeneration	54640	Ocean	40.0613
NJ	Linden Cogeneration Facility	50006	Union	40.6322
NJ	Linden Generating Station	2406	Union	40.6225
NJ	Logan Generating Plant	10043	Gloucester	39.7914
NJ	Mercer Generating Station	2408	Mercer	40.1797
NJ	Mickleton Energy Center	8008	Gloucester	39.8139
NJ	Middle Energy Center	2382	Cape May	39.0267
NJ	Missouri Avenue Energy Center	2383	Atlantic	39.3628
NJ	National Park	2409	Gloucester	39.8617
NJ	Newark Bay Cogen	50385	Essex	40.7197
NJ	North Jersey Energy Associates	10308	Middlesex	40.439
NJ	Ocean Peaking Power, LP	55938	Ocean	40.0606
NJ	Paulsboro Refining Company LLC	50628	Gloucester	39.84
NJ	Pedricktown Cogeneration Plant	10099	Salem	39.7661
NJ	Salem	2410	Salem	39.4625
NJ	Sayreville	2390	Middlesex	40.4753
NJ	Sewaren Generating Station	2411	Middlesex	40.5564
NJ	Sherman Avenue	7288	Cumberland	39.451

NJ	Sunoco Power Generation, LLC	50561	Gloucester	39.8746
NJ	Sunoco, Inc. (R&S) Eagle Point Facility	55113	Gloucester	39.8743
NJ	Werner	2385	Middlesex	40.4906
NJ	West Station	6776	Cumberland	39.4903
NM	Afton Generating Station	55210	Dona Ana	32.1134
NM	Bluffview Power Plant	55977	San Juan	36.7164
NM	Cunningham	2454	Lea	32.7131
NM	Escalante	87	McKinley	35.4159
NM	Four Corners Steam Elec Station	2442	San Juan	36.69
NM	Hobbs Generating Station	56458	Lea	32.7282
NM	Lordsburg Generating Station	7967	Hidalgo	32.3494
NM	Luna Energy Facility	55343	Luna	32.2983
NM	Maddox	2446	Lea	32.7131
NM	Milagro Cogeneration and Gas Plant	54814	San Juan	36.7367
NM	Person Generating Project	55039	Bernalillo	35.026
NM	Pyramid Generating Station	7975	Hidalgo	32.2363
NM	Reeves Generating Station	2450	Bernalillo	35.1716
NM	Rio Grande	2444	Dona Ana	31.8047
NM	San Juan	2451	San Juan	36.8006
NM	Valencia Power Plant	55802	Valencia	34.6063
NV	Apex Generating Station	55514	Clark	36.4178
NV	Chuck Lenzie Generating Station	55322	Clark	36.3853
NV	Clark	2322	Clark	36.0875
NV	Desert Star Energy Center	55077	Clark	35.7867
NV	Fort Churchill	2330	Lyon	39.1281
NV	Harry Allen	7082	Clark	36.425
NV	Las Vegas Cogeneration	10761	Clark	36.2317
NV	North Valmy	8224	Humboldt	40.8831
NV	Reid Gardner	2324	Clark	36.6531
NV	Silverhawk	55841	Clark	36.4078
NV	Sunrise	2326	Clark	36.1384
NV	TS Power Plant	56224	Eureka	40.7458
NV	Tracy	2336	Storey	39.5625
NV	Tri-Center Naniwa Energy	55494	Storey	39.5617
NV	Walter M. Higgins III Generating Station	55687	Clark	35.6139
NY	23rd and 3rd	7910	Kings	40.663
NY	59th Street	2503	New York	40.7711
NY	74th Street	2504	New York	40.768
NY	AES Cayuga, LLC	2535	Tompkins	42.6028
NY	AES Greenidge	2527	Yates	42.6789
NY	AES Somerset (Kintigh)	6082	Niagara	43.3561
NY	AES Westover (Goudey)	2526	Broome	42.1117
NY	AG - Energy	10803	Saint Lawrence	44.7258
NY	Allegany Station No. 133	10619	Allegany	42.5083
NY	Arthur Kill	2490	Richmond	40.5915
NY	Astoria Energy	55375	Queens	40.7825
NY	Astoria Gas Turbine Power	55243	Queens	40.7864

NY	Astoria Generating Station	8906	Queens	40.7869
NY	Athens Generating Company	55405	Greene	42.2728
NY	Batavia Energy	54593	Genesee	42.9828
NY	Bayswater Peaking Facility	55699	Queens	40.6106
NY	Bethlehem Energy Center (Albany)	2539	Albany	42.5905
NY	Bethpage Energy Center	50292	Nassau	40.7469
NY	Binghamton Cogen Plant	55600	Broome	42.1073
NY	Black River Generation, LLC	10464	Jefferson	44.0361
NY	Bowline Generating Station	2625	Rockland	41.2044
NY	Brentwood	7912	Suffolk	40.7869
NY	Brooklyn Navy Yard Cogeneration	54914	Kings	40.6994
NY	Caithness Long Island Energy Center	56234	Suffolk	40.8142
NY	Carr Street Generating Station	50978	Onondaga	43.0611
NY	Carthage Energy	10620	Jefferson	43.9842
NY	Castleton Power, LLC	10190	Rensselaer	42.5375
NY	Cornell University Ithaca Campus	50368	Tompkins	42.4428
NY	Covanta Niagara	50472	Niagara	43.0839
NY	Dynegy Danskammer	2480	Orange	41.5736
NY	Dynegy Roseton	8006	Orange	41.5711
NY	E F Barrett	2511	Nassau	40.6169
NY	East Hampton Facility	2512	Suffolk	40.9619
NY	East River	2493	New York	40.7281
NY	Eastman Kodak - Kodak Park	10025	Monroe	43.1969
NY	Edgewood Energy	55786	Suffolk	40.7861
NY	Empire Generating Company LLC	56259	Rensselaer	42.6296
NY	Equus Power I	56032	Nassau	40.6447
NY	Far Rockaway	2513	Queens	40.6111
NY	Fortistar North Tonawanda Inc	54131	Niagara	43.0483
NY	Freeport Power Plant No. 2	2679	Nassau	40.6447
NY	Glenwood	2514	Nassau	40.8269
NY	Glenwood Landing Energy Center	7869	Nassau	40.8275
NY	Gowanus	2494	Kings	40.6635
NY	Harlem River Yard	7914	Bronx	40.7989
NY	Hawkeye Energy Greenport, LLC	55969	Suffolk	41.1056
NY	Hell Gate	7913	Bronx	40.7988
NY	Hillburn	2628	Rockland	41.1269
NY	Holcim US Inc	880043	Greene	42.1631
NY	Holtsville Facility	8007	Suffolk	40.8153
NY	Hudson Avenue	2496	Kings	40.7052
NY	Huntley Power	2549	Erie	42.97
NY	Indeck-Corinth Energy Center	50458	Saratoga	43.25
NY	Indeck-Olean Energy Center	54076	Cattaraugus	42.0875
NY	Indeck-Oswego Energy Center	50450	Oswego	43.4682
NY	Indeck-Silver Springs Energy Center	50449	Wyoming	42.6544
NY	Indeck-Yerkes Energy Center	50451	Erie	42.9671
NY	Independence	54547	Oswego	43.495
NY	KIAC Cogeneration	54114	Queens	40.6417

NY	Lafarge Building Materials, Inc.	880044	Albany	42.4833
NY	Lehigh Northeast Cement Company	880052	Warren	43.3064
NY	Lockport	54041	Niagara	43.1622
NY	Massena Energy Facility	54592	Saint Lawrence	44.9503
NY	Momentive Performance Materials	880024	Saratoga	42.8158
NY	NRG Dunkirk Power	2554	Chautauqua	42.49
NY	Narrows	2499	Kings	40.6486
NY	Nassau Energy Corporation	52056	Nassau	40.7259
NY	Niagara Generation, LLC	50202	Niagara	43.0804
NY	Nissequogue Cogen	54149	Suffolk	40.9168
NY	North 1st	7915	Kings	40.7168
NY	Northport	2516	Suffolk	40.9231
NY	Oswego Harbor Power	2594	Oswego	43.46
NY	Pinelawn Power	56188	Suffolk	40.7358
NY	Poletti 500 MW CC	56196	Queens	40.7881
NY	Port Jefferson Energy Center	2517	Suffolk	40.9503
NY	Pouch Terminal	8053	Richmond	40.6188
NY	Ravenswood Generating Station	2500	Queens	40.7585
NY	Ravenswood Steam Plant	880100	Queens	40.76
NY	Rensselaer Cogen	54034	Rensselaer	42.63
NY	Richard M Flynn (Holtsville)	7314	Suffolk	40.8153
NY	Riverbay Corp. - Co-Op City	52168	Bronx	40.8697
NY	S A Carlson	2682	Chautauqua	42.0917
NY	Saranac Power Partners, LP	54574	Clinton	44.7132
NY	Selkirk Cogen Partners	10725	Albany	42.5744
NY	Shoemaker	2632	Orange	41.4278
NY	Shoreham Energy	55787	Suffolk	40.9572
NY	Sterling Power Plant	50744	Oneida	43.0803
NY	Syracuse Energy Corporation	50651	Onondaga	43.0653
NY	Ticonderoga Mill	54099	Essex	43.8914
NY	Vernon Boulevard	7909	Queens	40.7539
NY	WPS Beaver Falls Generation, LLC	10617	Lewis	43.8861
NY	WPS Syracuse Generation, LLC	10621	Onondaga	43.0664
NY	Wading River Facility	7146	Suffolk	40.9575
NY	West Babylon Facility	2521	Suffolk	40.6953
OH	AK Steel Corporation - Middletown	880042	Butler	39.4968
OH	AMP-Ohio Gas Turbines Bowling Green	55262	Wood	41.3989
OH	AMP-Ohio Gas Turbines Galion	55263	Crawford	40.7167
OH	AMP-Ohio Gas Turbines Napoleon	55264	Henry	41.4077
OH	ArcelorMittal Cleveland, Inc.	10398	Cuyahoga	41.4631
OH	Ashtabula	2835	Ashtabula	41.9086
OH	Avon Lake Power Plant	2836	Lorain	41.5042
OH	BP Husky Refining LLC	880030	Lucas	41.6786
OH	Bay Shore	2878	Lucas	41.6925
OH	Cardinal	2828	Jefferson	40.2522
OH	Cargill Incorporated	880039	Montgomery	39.8242
OH	Conesville	2840	Coshocton	40.1842

OH	Darby Electric Generating Station	55247	Pickaway	39.7139
OH	Dicks Creek Station	2831	Butler	39.465
OH	Duke Energy Hanging Rock, II LLC	55736	Lawrence	38.5731
OH	Duke Energy Washington, II LLC	55397	Washington	39.5798
OH	Eastlake	2837	Lake	41.6713
OH	Emery Oleochemicals, LLC	880033	Hamilton	39.1792
OH	Frank M Tait Station	2847	Montgomery	39.7281
OH	Gen J M Gavin	8102	Gallia	38.9347
OH	Greenville Electric Gen Station	55228	Darke	40.0747
OH	Hamilton Municipal Power Plant	2917	Butler	39.4083
OH	J M Stuart	2850	Adams	38.6361
OH	Killen Station	6031	Adams	38.6903
OH	Kyger Creek	2876	Gallia	38.9161
OH	Lake Shore	2838	Cuyahoga	41.5356
OH	Lima Refinery	880083	Allen	40.7234
OH	Mad River	2860	Clark	39.9239
OH	Madison Generating Station	55110	Butler	39.4522
OH	Miami Fort Generating Station	2832	Hamilton	39.1131
OH	Muskingum River	2872	Washington	39.5908
OH	Niles	2861	Trumbull	41.1667
OH	O H Hutchings	2848	Montgomery	39.6094
OH	Omega JV2 Bowling Green	7783	Wood	41.3883
OH	Omega JV2 Hamilton	7782	Butler	39.3528
OH	P H Glatfelter Company - Chillicothe Fac	10244	Ross	39.3265
OH	Picway	2843	Pickaway	39.7933
OH	Procter & Gamble Company - Ivorydale	880028	Hamilton	39.1756
OH	R E Burger	2864	Belmont	39.9094
OH	RG Steel, LLC	54207	Trumbull	41.2119
OH	Richland Peaking Station	2880	Defiance	41.3033
OH	Robert P Mone	7872	Van Wert	40.9297
OH	Rolling Hills Generating LLC	55401	Vinton	39.0839
OH	Smart Papers LLC	50247	Butler	39.4086
OH	Tait Electric Generating Station	55248	Montgomery	39.7286
OH	The Ohio State University	50044	Franklin	40.0008
OH	Troy Energy, LLC	55348	Wood	41.4774
OH	W H Sammis	2866	Jefferson	40.5308
OH	W H Zimmer Generating Station	6019	Clermont	38.8689
OH	Walter C Beckjord Generating Station	2830	Clermont	38.9917
OH	Waterford Plant	55503	Washington	39.5314
OH	West Lorain	2869	Lorain	41.4297
OH	Woodsdale	7158	Butler	39.4492
OK	Anadarko	3006	Caddo	35.0847
OK	Chouteau Power Plant	7757	Mayes	36.2206
OK	Comanche (8059)	8059	Comanche	34.5431
OK	Grand River Dam Authority	165	Mayes	36.1906
OK	Green Country Energy, LLC	55146	Tulsa	35.9833
OK	Horseshoe Lake	2951	Oklahoma	35.5089

OK	Hugo	6772	Choctaw	34.0158
OK	McClain Energy Facility	55457	McClain	35.2979
OK	Mooreland	3008	Woodward	36.4375
OK	Muskogee	2952	Muskogee	35.7617
OK	Mustang	2953	Canadian	35.4711
OK	Northeastern	2963	Rogers	36.4317
OK	Oneta Energy Center	55225	Wagoner	36.0119
OK	Ponca	762	Kay	36.7205
OK	Redbud Power Plant	55463	Oklahoma	35.6853
OK	Riverside (4940)	4940	Tulsa	35.9978
OK	Seminole (2956)	2956	Seminole	34.9678
OK	Sooner	6095	Noble	36.4537
OK	Southwestern	2964	Caddo	35.1009
OK	Spring Creek Power Plant	55651	Logan	35.7422
OK	Tenaska Kiamichi Generating Station	55501	Pittsburg	34.6831
OK	Tulsa	2965	Tulsa	36.1125
OR	Boardman	6106	Morrow	45.6933
OR	Coyote Springs	7350	Morrow	45.8486
OR	Hermiston	54761	Umatilla	45.8042
OR	Hermiston Power Plant	55328	Umatilla	45.7931
OR	Klamath Cogeneration Project	55103	Klamath	42.1739
OR	Klamath Energy LLC	55544	Klamath	42.1725
OR	Port Westward	56227	Columbia	46.1792
PA	AES Beaver Valley LLC	10676	Beaver	40.6558
PA	AES Ironwood	55337	Lebanon	40.3509
PA	Allegheny Energy Units 1 & 2	55196	Allegheny	40.5447
PA	Allegheny Energy Units 3, 4 & 5	55710	Allegheny	40.5456
PA	Allegheny Energy Units 8 & 9	55377	Fayette	39.7475
PA	Armagh Compressor Station	880071	Indiana	40.4319
PA	Armstrong Energy Ltd Partnership, LLLP	55347	Armstrong	40.6383
PA	Armstrong Power Station	3178	Armstrong	40.9289
PA	Bernville Station	880049	Berks	40.4092
PA	Bethlehem Power Plant	55690	Northampton	40.6175
PA	Bruce Mansfield	6094	Beaver	40.6344
PA	Brunner Island	3140	York	40.097
PA	Brunot Island Power Station	3096	Allegheny	40.4638
PA	Cambria Cogen	10641	Cambria	40.4748
PA	Chambersburg Units 12 & 13	55654	Franklin	39.8668
PA	Cheswick	8226	Allegheny	40.5383
PA	Colver Power Project	10143	Cambria	40.55
PA	Conemaugh	3118	Indiana	40.3842
PA	ConocoPhillips Co., Trainer Refinery	880025	Delaware	39.8228
PA	Cromby	3159	Chester	40.1514
PA	Croydon Generating Station	8012	Bucks	40.08
PA	Domtar Paper Company, LLC	54638	Elk	41.4908
PA	Duke Energy Fayette, II LLC	55516	Fayette	39.8592
PA	Ebensburg Power Company	10603	Cambria	40.455

PA	Eddystone Generating Station	3161	Delaware	39.858
PA	Elrama	3098	Washington	40.2525
PA	Entriken Compressor Station	880072	Huntingdon	40.3086
PA	FPL Energy MH50	50074	Delaware	39.8103
PA	FPL Energy Marcus Hook, LP	55801	Delaware	39.8083
PA	Fairless Energy, LLC	55298	Bucks	40.1464
PA	Fairless Hills Generating Station	7701	Bucks	40.1405
PA	G F Weaton	50130	Beaver	40.6672
PA	Gilberton Power Company	10113	Schuylkill	40.79
PA	Grays Ferry Cogen Partnership	54785	Philadelphia	39.9417
PA	Handsome Lake Energy	55233	Venango	41.2908
PA	Hatfield's Ferry Power Station	3179	Greene	39.8562
PA	Hazleton Generation	10870	Luzerne	40.9282
PA	Homer City	3122	Indiana	40.511
PA	Hunlock Creek Energy Center	3176	Luzerne	41.2033
PA	Hunlock Unit 4	56397	Luzerne	41.2033
PA	Hunterstown Combined Cycle	55976	Adams	39.8725
PA	Keystone	3136	Armstrong	40.6604
PA	Kimberly-Clark Tissue Company	50410	Delaware	39.8439
PA	Liberty Electric Power Plant	55231	Delaware	39.8622
PA	Lower Mount Bethel Energy	55667	Northampton	40.8011
PA	Martins Creek	3148	Northampton	40.796
PA	Merck & Company - West Point	52149	Montgomery	40.2128
PA	Mitchell Power Station	3181	Washington	40.2207
PA	Montour	3149	Montour	41.0714
PA	Mountain	3111	Cumberland	40.1219
PA	Mt. Carmel Cogeneration	10343	Northumberland	40.8092
PA	Naval Surface Warfare Center	880009	Philadelphia	39.8908
PA	New Castle	3138	Lawrence	40.9378
PA	North East Cogeneration Plant	54571	Erie	42.202
PA	Northampton Generating Plant	50888	Northampton	40.6917
PA	Northeastern Power Company	50039	Schuylkill	40.8737
PA	Ontelaunee Energy Center	55193	Berks	40.4219
PA	P H Glatfelter Company	50397	York	39.8717
PA	PEI Power Corporation	50279	Lackawanna	41.4844
PA	Panther Creek Energy Facility	50776	Carbon	40.8556
PA	Philadelphia Refinery	52106	Philadelphia	39.9058
PA	Piney Creek Power Plant	54144	Clarion	41.1776
PA	Portland	3113	Northampton	40.91
PA	Procter & Gamble Paper Products	50463	Wyoming	41.573
PA	Richmond	3168	Philadelphia	39.9853
PA	Schuylkill	3169	Philadelphia	39.9425
PA	Scrubgrass Generating Plant	50974	Venango	41.2678
PA	Seward	3130	Indiana	40.4081
PA	Shawville	3131	Clearfield	41.067
PA	Shermans Dale Station	880050	Perry	40.3439
PA	St. Nicholas Cogeneration Project	54634	Schuylkill	40.8222

PA	Sunbury	3152	Snyder	40.8361
PA	Sunoco Chemicals Frankford Plant	880007	Philadelphia	40.0067
PA	Titus	3115	Berks	40.3061
PA	Tolna	3116	York	39.7636
PA	Trigen Energy - Schuylkill	50607	Philadelphia	39.9422
PA	Trigen Energy Corporation-Edison St	880006	Philadelphia	39.949
PA	US Steel (Clairton Coke)	50729	Allegheny	40.3097
PA	US Steel (Edgar Thomson)	50732	Allegheny	40.3925
PA	United Refining Company	880099		
PA	WPS Westwood Generation, LLC	50611	Schuylkill	40.6191
PA	Warren	3132	Warren	41.8358
PA	Wheelabrator - Frackville	50879	Schuylkill	40.7817
PA	York Energy Center	55524	York	39.4417
RI	FPLE Rhode Island State Energy LP	55107	Providence	41.8017
RI	Manchester Street	3236	Providence	41.8167
RI	Ocean State Power	51030	Providence	42.0099
RI	Ocean State Power II	54324	Providence	42.0099
RI	Pawtucket Power Associates, LP	54056	Providence	41.861
RI	Tiverton Power	55048	Newport	41.6417
SC	AbiBow US Inc. - Catawba Operations	2440	York	34.8456
SC	BP Amoco Chemical Company CR Plant	880092	Berkeley	32.9701
SC	Broad River Energy Center	55166	Cherokee	35.0786
SC	Canadys Steam	3280	Colleton	33.0647
SC	Cherokee County Cogen	55043	Cherokee	35.0727
SC	Cogen South	7737	Charleston	32.8994
SC	Columbia Energy Center (SC)	55386	Calhoun	33.8692
SC	Cope Station	7210	Orangeburg	33.3642
SC	Cross	130	Berkeley	33.3692
SC	Darlington County	3250	Darlington	34.4185
SC	Dolphus M Grainger	3317	Horry	33.8253
SC	H B Robinson	3251	Darlington	34.4017
SC	Hagood	3285	Charleston	32.8265
SC	Hilton Head Gas Turbine Site	3318	Beaufort	32.2089
SC	INVISTA S.a.r.l. Camden Plant	880057	Kershaw	34.2337
SC	International Paper-Eastover Mill	52151	Richland	33.8872
SC	Jasper County Generating Facility	55927	Jasper	32.3592
SC	Jefferies	3319	Berkeley	33.2422
SC	John S. Rainey Generating Station	7834	Anderson	34.3477
SC	Marlboro Paper Mill	880074	Marlboro	34.605
SC	McMeekin	3287	Lexington	34.0533
SC	Mill Creek Combustion Turbine Sta	7981	Cherokee	35.1597
SC	Myrtle Beach Gas Turbine Site	3320	Horry	33.7089
SC	Smurfit-Stone Container	50806	Florence	34.1519
SC	Sonoco Products Company	880078	Darlington	34.387
SC	Urquhart	3295	Aiken	33.435
SC	W S Lee	3264	Anderson	34.6022
SC	Wateree	3297	Richland	33.8264

SC	Williams	3298	Berkeley	33.0163
SC	Winyah	6249	Georgetown	33.3303
SD	Angus Anson	7237	Minnehaha	43.6033
SD	Big Stone	6098	Grant	45.3047
SD	Groton Generating Station	56238	Brown	45.3718
SD	Huron	3344	Beadle	44.3696
SD	Lange	55478	Pennington	44.1212
TN	Allen	3393	Shelby	35.0742
TN	Bowater Newsprint - Calhoun Operation	50956	McMinn	35.2964
TN	Brownsville CT	55081	Haywood	35.5438
TN	Bull Run	3396	Anderson	36.0211
TN	Cargill Corn Milling	10729	Shelby	35.0828
TN	Cumberland	3399	Stewart	36.3903
TN	Dupont Johnsonville	880001	Humphreys	36.0419
TN	Dupont Old Hickory	10797	Davidson	36.2756
TN	Eastman Chemical Company	50481	Sullivan	36.5192
TN	Gallatin	3403	Sumner	36.3156
TN	Gleason Generating Facility	55251	Weakley	36.2454
TN	John Sevier	3405	Hawkins	36.3767
TN	Johnsonville	3406	Humphreys	36.0278
TN	Kingston	3407	Roane	35.8992
TN	Lagoon Creek	7845	Haywood	35.6578
TN	Memphis Refinery	55703	Shelby	35.0836
TN	Packaging Corporation of America	50296	Hardin	35.0442
TN	Tate & Lyle-Loudon	880079	Loudon	35.7433
TX	AES Deepwater, Inc.	10670	Harris	29.7192
TX	Alex Ty Cooke Generating Station	3602	Lubbock	33.5211
TX	Barney M. Davis	4939	Nueces	27.6067
TX	Bastrop Clean Energy Center	55168	Bastrop	30.1458
TX	Bayou Cogeneration Plant	10298	Harris	29.6225
TX	Baytown Energy Center	55327	Chambers	29.7731
TX	Big Brown	3497	Freestone	31.8206
TX	Blackhawk Station	55064	Hutchinson	35.6957
TX	Bosque County Power Plant	55172	Bosque	31.8594
TX	Brazos Valley Energy, LP	55357	Fort Bend	29.4731
TX	C E Newman	3574	Dallas	32.9125
TX	C. R. Wing Cogeneration Plant	52176	Howard	32.2722
TX	Calpine Hidalgo Energy Center	7762	Hidalgo	26.3389
TX	Cedar Bayou	3460	Chambers	29.7483
TX	Cedar Bayou 4	56806	Chambers	29.752
TX	Channel Energy Center	55299	Harris	29.7189
TX	Channelview Cogeneration Facility	55187	Harris	29.8356
TX	Clear Lake Cogeneration	10741	Harris	29.6255
TX	Coleto Creek	6178	Goliad	28.7128
TX	Colorado Bend Energy Center	56350	Wharton	29.2878
TX	Copper Station	9	El Paso	31.7569
TX	Corpus Christi Energy Center	55206	Nueces	27.8139

TX	Cottonwood Energy Project	55358	Newton	30.2588
TX	Decker Creek	3548	Travis	30.3036
TX	Decordova	8063	Hood	32.4033
TX	Deer Park Energy Center	55464	Harris	29.7153
TX	Eastman Cogeneration Facility	55176	Harrison	32.4472
TX	Ennis Power Company, LLC	55223	Ellis	32.3194
TX	Exelon Laporte Generating Station	55365	Harris	29.702
TX	Exxonmobil Beaumont Refinery	50625	Jefferson	30.0639
TX	FPLE Forney, LP	55480	Kaufman	32.7563
TX	Freestone Power Generation	55226	Freestone	31.8907
TX	Frontera Generation Facility	55098	Hidalgo	26.208
TX	Gibbons Creek Steam Electric Station	6136	Grimes	30.6167
TX	Graham	3490	Young	33.135
TX	Greens Bayou	3464	Harris	29.8208
TX	Gregory Power Facility	55086	San Patricio	27.8881
TX	Guadalupe Generating Station	55153	Guadalupe	29.6237
TX	H W Pirkey Power Plant	7902	Harrison	32.4607
TX	Handley Generating Station	3491	Tarrant	32.7278
TX	Hardin County Peaking Facility	56604	Hardin	30.3039
TX	Harrington Station	6193	Potter	35.2972
TX	Harrison County Power Project	55664	Harrison	32.3958
TX	Hays Energy Project	55144	Hays	29.7806
TX	J K Spruce	7097	Bexar	29.3091
TX	J Robert Massengale Generating Station	3604	Lubbock	33.6039
TX	J T Deely	6181	Bexar	29.3072
TX	Jack County Generation Facility	55230	Jack	33.101
TX	Johnson County Generation Facility	54817	Johnson	32.3994
TX	Jones Station	3482	Lubbock	33.5239
TX	Knox Lee Power Plant	3476	Gregg	32.3766
TX	Lake Creek	3502	McLennan	31.4647
TX	Lake Hubbard	3452	Dallas	32.8364
TX	Lamar Power (Paris)	55097	Lamar	33.6314
TX	Laredo	3439	Webb	27.5667
TX	Leon Creek	3609	Bexar	29.3511
TX	Lewis Creek	3457	Montgomery	30.4364
TX	Limestone	298	Limestone	31.4219
TX	Lone Star Power Plant	3477	Morris	32.9217
TX	Lost Pines 1	55154	Bastrop	30.1478
TX	Magic Valley Generating Station	55123	Hidalgo	26.3403
TX	Martin Lake	6146	Rusk	32.2597
TX	Midlothian Energy	55091	Ellis	32.4302
TX	Monticello	6147	Titus	33.0917
TX	Moore County Station	3483	Moore	35.9667
TX	Morgan Creek	3492	Mitchell	32.3358
TX	Mountain Creek Generating Station	3453	Dallas	32.7253
TX	Mustang Station	55065	Yoakum	32.9728
TX	Mustang Station Units 4 and 5	56326	Yoakum	32.9748

TX	New Gulf Power Facility	50137	Wharton	29.2639
TX	Newman	3456	El Paso	31.9858
TX	Nichols Station	3484	Potter	35.2825
TX	Nueces Bay	3441	Nueces	27.8182
TX	O W Sommers	3611	Bexar	29.3078
TX	Oak Grove	6180	Robertson	31.185
TX	Odessa-Ector Power Partners, LP	55215	Ector	31.8378
TX	Oklaunion Power Station	127	Wilbarger	34.0825
TX	Optim Energy Altura Cogen, LLC	50815	Harris	29.8161
TX	Pampa Power Plant	7678	Gray	35.4834
TX	Paris Energy Center	50109	Lamar	33.6968
TX	Pasadena Power Plant	55047	Harris	29.7233
TX	Permian Basin	3494	Ward	31.5839
TX	Plant X	3485	Lamb	34.1661
TX	Power Lane Steam Plant	4195	Hunt	33.1707
TX	Quail Run Energy Center	56349	Ector	31.8414
TX	R W Miller	3628	Palo Pinto	32.6581
TX	Ray Olinger	3576	Collin	33.0667
TX	Rio Nogales Power Project, LP	55137	Guadalupe	29.5932
TX	Roland C. Dansby Power Plant	6243	Brazos	30.7217
TX	SRW Cogen Limited Partnership	55120	Orange	30.0561
TX	Sabine	3459	Orange	30.0242
TX	Sabine Cogeneration Facility	55104	Orange	30.0444
TX	Sam Bertron	3468	Harris	29.7268
TX	Sam Rayburn Plant	3631	Victoria	28.8947
TX	Sam Seymour	6179	Fayette	29.9172
TX	San Jacinto County Peaking Facility	56603	San Jacinto	30.42
TX	San Jacinto Steam Electric Station	7325	Harris	29.6967
TX	San Miguel	6183	Atascosa	28.7044
TX	Sand Hill Energy Center	7900	Travis	30.2091
TX	Sandow	6648	Milam	30.5642
TX	Sandow Station	52071	Milam	30.5681
TX	Silas Ray	3559	Cameron	25.9131
TX	Sim Gideon	3601	Bastrop	30.1456
TX	South Houston Green Power Site	55470	Galveston	29.3775
TX	Spencer	4266	Denton	33.1978
TX	Stryker Creek	3504	Cherokee	31.9381
TX	Sweeny Cogeneration Facility	55015	Brazoria	29.0728
TX	Sweetwater Generating Plant	50615	Nolan	32.4925
TX	T C Ferguson Power Plant	4937	Llano	30.558
TX	T H Wharton	3469	Harris	29.9414
TX	Tenaska Frontier Generating Station	55062	Grimes	30.5924
TX	Tenaska Gateway Generating Station	55132	Rusk	32.0164
TX	Texas City Cogeneration	52088	Galveston	29.3787
TX	Tolk Station	6194	Lamb	34.1847
TX	Tradinghouse	3506	McLennan	31.5733
TX	Trinidad	3507	Henderson	32.1264

TX	Twin Oaks	7030	Robertson	31.0932
TX	V H Braunig	3612	Bexar	29.2575
TX	Valley (TXU)	3508	Fannin	33.6281
TX	Victoria Power Station	3443	Victoria	28.7883
TX	W A Parish	3470	Fort Bend	29.4828
TX	W B Tuttle	3613	Bexar	29.53
TX	Welsh Power Plant	6139	Titus	33.0583
TX	Wilkes Power Plant	3478	Marion	32.8486
TX	Winchester Power Park	56674	Fayette	30.0383
TX	Wise County Power Company, LLC	55320	Wise	33.0583
TX	Wolf Hollow I, LP	55139	Hood	32.3347
UT	Bonanza	7790	Uintah	40.0864
UT	Carbon	3644	Carbon	39.7272
UT	Currant Creek Power Project	56102	Juab	39.8223
UT	Gadsby	3648	Salt Lake	40.7686
UT	Hunter	6165	Emery	39.1747
UT	Huntington	8069	Emery	39.3792
UT	Intermountain	6481	Millard	39.5108
UT	Lake Side Power Plant	56237	Utah	40.3311
UT	Millcreek Power	56253	Washington	37.1124
UT	Nebo Power Station	56177	Utah	40.0614
UT	West Valley Generation Project	55622	Salt Lake	40.6663
VA	Altavista Power Station	10773	Campbell	37.1183
VA	Bear Garden Generating Station	56807	Buckingham	37.6961
VA	Bellemeade Power Station	50966	Richmond (City)	37.4964
VA	Birchwood Power Facility	S4304	King George	38.2667
VA	Bremo Power Station	3796	Fluvanna	37.7089
VA	Buchanan Units 1 & 2	55738	Buchanan	37.1753
VA	Celanese Acetate LLC	52089	Giles	37.3451
VA	Chesapeake Energy Center	3803	Chesapeake (City)	36.7711
VA	Chesterfield Power Station	3797	Chesterfield	37.3822
VA	Clinch River	3775	Russell	36.9333
VA	Clover Power Station	7213	Halifax	36.8692
VA	Cogentrix-Hopewell	10377	Hopewell (City)	37.2939
VA	Cogentrix-Portsmouth	10071	Portsmouth (City)	36.8703
VA	Commonwealth Chesapeake	55381	Accomack	37.9892
VA	Darbytown Combustion Turbine	7212	Henrico	37.4978
VA	Doswell Limited Partnership	52019	Hanover	37.8181
VA	Elizabeth River Combustion Turbine Sta	52087	Chesapeake (City)	36.7743
VA	GP Big Island, LLC	50479	Bedford	37.5229
VA	Glen Lyn	3776	Giles	37.3704
VA	Gordonsville Power Station	54844	Louisa	38.1253
VA	Gravel Neck Combustion Turbine	7032	Surry	37.1575
VA	Honeywell Intl, Inc Hopewell Plant	880093	Prince George	37.3016
VA	Hopewell Cogeneration Facility	10633	Hopewell (City)	37.2914
VA	Hopewell Power Station	10771	Hopewell (City)	37.2969
VA	International Paper-Franklin Mill	52152	Isle of Wight	36.6803

VA	Ladysmith Combustion Turbine Sta	7838	Caroline	38.5442
VA	Louisa Generation Facility	7837	Louisa	38.1181
VA	Marsh Run Generation Facility	7836	Fauquier	38.5283
VA	MeadWestvaco of Virginia, Covington	50900	Alleghany	37.7997
VA	Mecklenburg Power Station	52007	Mecklenburg	36.6009
VA	Possum Point Power Station	3804	Prince William	38.5367
VA	Potomac River	3788	Alexandria (City)	38.8203
VA	Remington Combustion Turbine Station	7839	Fauquier	38.0722
VA	RockTenn West Point Mill	10017	King William	37.5392
VA	Southampton Power Station	10774	Southampton	36.6525
VA	Spruance Genco, LLC	54081	Richmond (City)	37.4556
VA	Tasley Energy Center	3785	Accomack	37.7061
VA	Tenaska Virginia Generating Station	55439	Fluvanna	37.8667
VA	Wolf Hills Energy	55285	Washington	36.6644
VA	Yorktown Power Station	3809	York	37.2144
VT	Berlin 5	3734	Washington	44.2498
VT	J C McNeil	589	Chittenden	44.4917
VT	Penny Lane Gas Turbine	3754	Chittenden	44.4817
WA	Centralia	3845	Lewis	46.7559
WA	Chehalis Generation Facility	55662	Lewis	46.6226
WA	Encogen Generating Station	7870	Whatcom	48.746
WA	Frederickson Power LP	55818	Pierce	47.0864
WA	Fredonia Generating Station	607	Skagit	48.4553
WA	Goldendale Generating Station	55482	Klickitat	45.8114
WA	Grays Harbor Energy Center	7999	Grays Harbor	46.9688
WA	Mint Farm Generating Station	55700	Cowlitz	46.1403
WA	River Road	7605	Clark	45.65
WA	Sumas Generating Station	54476	Whatcom	48.9905
WI	Alma	4140	Buffalo	44.3085
WI	Bay Front	3982	Ashland	46.5869
WI	Blount Street	3992	Dane	43.0792
WI	Columbia	8023	Columbia	43.4864
WI	Combined Locks Energy Center, LLC	55558	Outagamie	44.2717
WI	Concord	7159	Jefferson	43.1669
WI	DTE Stoneman, LLC	4146	Grant	42.7083
WI	Depere Energy Center	55029	Brown	44.4489
WI	Edgewater (4050)	4050	Sheboygan	43.715
WI	Elk Mound Generating Station	7863	Chippewa	44.9019
WI	Elm Road Generating Station	56068	Milwaukee	42.8445
WI	Fitchburg Generating Station	3991	Dane	43.0149
WI	Fox Energy Company LLC	56031	Outagamie	44.3204
WI	French Island	4005	La Crosse	43.8298
WI	Genoa	4143	Vernon	43.5592
WI	Germantown Power Plant	6253	Washington	43.1952
WI	Island Street Peaking Plant	55836	Outagamie	44.2761
WI	J P Madgett	4271	Buffalo	44.3026
WI	Manitowoc	4125	Manitowoc	44.082

WI	Marshfield Utilities Combustion Turbine	56480	Wood	44.635
WI	Neenah Energy Facility	55135	Winnebago	44.1934
WI	Nelson Dewey	4054	Grant	42.7225
WI	Paris	7270	Kenosha	42.6658
WI	Pleasant Prairie	6170	Kenosha	42.5381
WI	Port Washington Generating Station	4040	Ozaukee	43.3842
WI	Pulliam	4072	Brown	44.5397
WI	Riverside Energy Center	55641	Rock	42.5835
WI	Rock River	4057	Rock	42.5831
WI	Rockgen Energy Center	55391	Dane	42.9767
WI	Sheboygan Falls Energy Facility	56166	Sheboygan	43.7519
WI	Sheepskin	4059	Rock	42.8347
WI	South Fond Du Lac	7203	Fond du Lac	43.7353
WI	South Oak Creek	4041	Milwaukee	42.8457
WI	Valley (WEPCO)	4042	Milwaukee	43.0303
WI	West Campus Cogeneration Facility	7991	Dane	43.0751
WI	West Marinette	4076	Marinette	45.0869
WI	Weston	4078	Marathon	44.8606
WI	Wheaton Generating Plant	4014	Chippewa	44.8864
WI	Whitewater Cogeneration Facility	55011	Jefferson	42.8543
WV	Albright Power Station	3942	Preston	39.4883
WV	ArcelorMittal Weirton,Inc.	54344	Hancock	40.422
WV	Bayer Cropscience Institute Plant	880053	Kanawha	38.3864
WV	Big Sandy Peaker Plant	55284	Wayne	38.3441
WV	Ceredo Generating Station	55276	Wayne	38.3681
WV	Dupont Belle Plant	10788	Kanawha	38.2431
WV	Fort Martin Power Station	3943	Monongalia	39.7107
WV	Grant Town Power Plant	10151	Marion	39.5611
WV	Harrison Power Station	3944	Harrison	39.3844
WV	John E Amos	3935	Putnam	38.4731
WV	Kammer	3947	Marshall	39.8464
WV	Kanawha River	3936	Kanawha	38.2056
WV	Longview Power	56671	Monongalia	39.7078
WV	Mitchell (WV)	3948	Marshall	39.8297
WV	Morgantown Energy Facility	10743	Monongalia	39.6397
WV	Mount Storm Power Station	3954	Grant	39.2014
WV	Mountaineer (1301)	6264	Mason	38.9794
WV	North Branch Power Station	7537	Grant	39.2623
WV	PPG Industries, Inc - Natrium Plant	50491	Marshall	39.7475
WV	Phil Sporn	3938	Mason	38.9669
WV	Pleasants Energy, LLC	55349	Pleasants	39.3328
WV	Pleasants Power Station	6004	Pleasants	39.3668
WV	Rivesville Power Station	3945	Marion	39.5314
WV	UCC South Charleston Plant	50151	Kanawha	38.3688
WV	Willow Island Power Station	3946	Pleasants	39.3672
WY	Dave Johnston	4158	Converse	42.8378
WY	Dry Fork Station	56609	Campbell	40.2028

WY	Jim Bridger	8066	Sweetwater	41.7378
WY	Laramie River	6204	Platte	42.1103
WY	Naughton	4162	Lincoln	41.7572
WY	Neil Simpson II	7504	Campbell	44.2853
WY	Neil Simpson II (CT2)	55477	Campbell	44.2853
WY	Wygen I	55479	Campbell	44.2862
WY	Wygen II	56319	Campbell	44.2911
WY	Wygen III	56596	Campbell	44.2892
WY	Wyodak	6101	Campbell	44.2886

Mr. WHITFIELD. Thank you.

Dr. Wellenius, you are recognized for 5 minutes.

STATEMENT OF GREGORY WELLENIUS

Mr. WELLENIUS. Thank you, Mr. Chairman. Members of the committee, thank you for the opportunity to testify today. My name is Dr. Gregory Wellenius. I am Assistant Professor of Epidemiology at Brown University.

I earned my doctorate in environmental health and epidemiology from the Harvard School of Public Health. I previously served on the faculty at Harvard Medical School. I have been conducting research on the health effects of air pollution for more than 10 years. I have authored or coauthored more than a dozen original studies in this area and contributed as an author for the EPA's 2009 Integrated Science Assessment for Particulate Matter. My research has focused on the effects of ambient air pollutants on cardiovascular disease, and it is my pleasure to provide testimony in this area today.

There is a broad consensus in the scientific and medical communities that ambient particles are harmful to human health. For example, after reviewing the scientific evidence, the American Heart Association recently stated that exposure to fine particles, or PM2.5, is "a modifiable factor that contributes to cardiovascular morbidity and mortality."

The external panel of independent scientists that make up the Clean Air Scientific Advisory Committee, or CASAC, and EPA scientists concluded that a causal relationship exists between ambient fine particles and both mortality and cardiovascular effects and a likely causal relationship between ambient fine particles and respiratory effects. This conclusion has been endorsed by a number of scientific organizations including the World Health Organization, the National Research Council, the American Medical Association, the American Lung Association, and the American Thoracic Society, to name a few.

As has been pointed out, the coarse and fine fractions of particulate matter differ in their size, sources and composition. In my written testimony, I provide further details regarding the well-established health effects of ambient fine particles. While fewer studies have looked specifically at the health effects of coarse particles, the existing evidence suggests that these particles can also be harmful to people's health.

In the 2009 Integrated Science Assessment for Particulate Matter, CASAC and EPA scientists concluded that the available evidence is suggestive for a causal relationship between coarse particles and mortality, cardiovascular effects and respiratory effects. The available science indeed supports an association between coarse particles and cardiovascular hospital admissions. For example, a recent study in 112 U.S. cities found that coarse particles were linked with higher risk of premature death from all causes, stroke and respiratory causes, even after accounting for levels of fine particles. Taken together, the existing evidence suggests that exposure to higher levels of coarse particles may increase the risk of death, cardiovascular hospitalization and respiratory effects.

Now, most epidemiologic studies on coarse particles have been conducted in urban settings. However, agricultural dust can also be harmful to people. Field workers exposed to minimal dust from agricultural sources experience more acute and chronic bronchitis, chronic obstructive airway disease and interstitial lung disease. Agricultural workers exposed to organic dust have been found to have a higher risk of allergic reactions, asthma, hypersensitivity pneumonitis and organic dust toxic syndrome. A studying examining the lungs of California farm workers found that their bronchioles had accumulation of dust particles and thickening and inflammation in the respiratory tissues.

Sandstorms and other dust events typically increase the concentration of coarse particles much more than fine particles. Studying these events provides information on the potential health effects of coarse particles of non-urban origin. For example, Asian dust storms in Taipei, Taiwan, have been associated with increased rates of hospital visits for ischemic heart disease such as heart attacks. Other studies have linked dust events in Spain and Cyprus with increased risk of hospitalization or death. These studies add to the evidence of health effects of coarse particles and highlight that even coarse particles from nonurban environments can have important health effects.

In conclusion, Congress built into the Clean Air Act an orderly process for the regular review of the scientific evidence on health effects of air pollution. This process includes multiple rounds of scientific peer review including by CASAC and other scientists and the public. I strongly urge you to preserve the authority of the EPA to periodically review the available scientific evidence and when appropriate update the air quality standards including for PM_{10} and coarse particles. This process is essential if we are to adequately protect the public's health.

I thank you for your time and would be happy to answer any questions.

[The prepared statement of Mr. Wellenius follows:]

Testimony of Gregory Wellenius, ScD

Assistant Professor of Epidemiology at Brown University

Hearing on

H.R. 1633, the "Farm Dust Regulation Prevention Act of 2011"

Subcommittee on Energy and Power
Committee on Energy and Commerce

U.S. House of Representatives

October 25, 2011

Mr. Chairman, Members of the Committee, thank you for the opportunity to testify today. I am Dr. Gregory Wellenius, Assistant Professor of Epidemiology at Brown University. I earned my doctorate in Environmental Health and Epidemiology from the Harvard School of Public Health and served on the faculty at Harvard Medical School from 2007 to 2009. I have been conducting research on the health effects of air pollution for more than 10 years and have authored or coauthored more than a dozen original studies in this area. I contributed as an author for the EPA's December 2009 Integrated Science Assessment for particulate matter. Currently, my research focuses on the effect of ambient air pollution on cardiovascular disease and brain health.

There is a broad consensus in the scientific community that particulate matter air pollution is harmful to human health. Based on the available evidence, the American Heart Association recently concluded that exposure to ambient fine particulate matter air pollution ($PM_{2.5}$) is a "modifiable factor that contributes to cardiovascular morbidity and mortality".[1] The World Health Organization attributes 28,000 premature deaths in North America and 800,000 worldwide to ambient particulate matter each year,[2-3] although more recent studies suggest that the true public health burden might be even greater.[4]

In the scientific review of the 2009 Integrated Science Assessment for Particulate Matter, the external panel of independent scientists that make up the Clean Air Scientific Advisory Committee and the EPA scientists concluded that a "causal relationship" exists between ambient fine particulate matter and both mortality and cardiovascular effects and that "a likely causal" relationship exists between ambient fine particulate matter and respiratory effects.[5-6]

The conclusion that ambient fine particulate matter is an important and preventable cause of death and hospitalization has been endorsed by a number of scientific organizations including the World Health Organization, the National Research Council, the American Medical Association, the American Lung Association, the American Heart Association, the American Thoracic Association, the American Academy of Pediatrics, the American College of Cardiology, and the American Association of Cardiovascular and Pulmonary Rehabilitation, among others. Clean Air Scientific Advisory Committee.

I now draw your attention to some key scientific findings of these health effects.

Long-term health effects

A number of large studies have looked at the long-term health effects of ambient particles. The first of these studies was the Harvard Six Cities study which followed 8111 men and women living in 6 U.S. cities for 14-16 years. The researchers found that over a 16 year period, adults who lived in the most polluted of the 6 cities had a 26% higher rate of death as compared to those in the least polluted city.[7] Several other studies have found similar results including the American Cancer Society Cancer Prevention Study II,[8-10] the California Seventh-day Adventists cohort study,[11] and a recent national study of 66,000 participants from the Women's Health Initiative (WHI) Observational Study.[12] These studies provide evidence linking long-term exposure to ambient particulate matter and all-cause mortality, cardiovascular mortality, and non-fatal cardiovascular events.

We now know that the increased risk of cardiovascular events linked to ambient particulate matter is at least partly due to increases in atherosclerosis from particulate matter. Specifically, several studies have shown that people that live in areas with more air pollution have more atherosclerosis.[13-15] These findings are supported by laboratory experiments showing that animals exposed to particulate matter develop more atherosclerosis than those animals exposure to clean air. [16-18]

The impact of particulate air pollution on life expectancy is substantial. Scientists recently looked at changes in life expectancy in 200 counties in the U.S. and calculated that reductions in fine particle air pollution between 1980 and 2000 increased the average lifespan in these counties by approximately 5 months.[19] Importantly, the greatest increase in life expectancy was seen in those counties showing the greatest reduction in fine particle air pollution during this time.

Short-term health effects

Hundreds of studies in the U.S. and around the world have confirmed that elevations in particulate matter are associated with an increased risk of premature death, cardiovascular death, hospitalization for respiratory and cardiovascular diseases, and respiratory symptoms within days.[5] These associations have been found for $PM_{2.5}$ (fine particles smaller than 2.5 micrometers in diameter), PM_{10} (particles smaller than 10 micrometers in diameter), and $PM_{10-2.5}$ (coarse particles ranging in diameter from 2.5 to 10 micrometers).

These scientific studies have linked particulate matter exposure to a variety of problems, including:

- aggravated asthma in children;[20]
- increased emergency department visits and hospital admissions;[21-22]
- higher risk of hospitalization for congestive heart failure,[23] stroke,[24] and myocardial infarction (heart attacks);[25]
- increased risk of premature death;[26]
- greater risk of discharge of implantable cardioverter-defibrillator (ICD).[27]

Not only does particulate matter trigger serious health threats, higher exposure can also increase the risk of subsequent cardiovascular events. In a large study of nearly two hundred thousand heart attack survivors showed that these people faced increased risk for harm from subsequent exposure to PM10, risks that include death, subsequent myocardial infarction (MI), or admission to a hospital for congestive heart failure. [28]

Particulate pollution can cause health problems for anyone, but certain people are especially susceptible. Children and teenagers, the elderly, and people who already have cardiovascular disease, chronic lung disease or diabetes and individuals with low socioeconomic status or lower educational levels are among the groups most at risk. Even healthy adults who work or exercise outdoors may face higher risk.[5]

Many of these studies have been done in cities that are in compliance of the U.S. National Ambient Air Quality Standards. Thus, the harmful effects of particulate matter can be seen even at pollution levels below the current regulatory standards.

Other studies have taken advantage of natural experiments to show that reducing PM levels leads to improved health. An 8-month national copper smelter strike in the 1960's led to a large reduction in ambient particulate matter and a 2.5% reduction in death rates in the southwestern U.S.[29] Similarly, respiratory deaths fell by 15% and cardiovascular deaths fell by 10% following a ban on the sale of coal in Dublin, Ireland in 1990.[30]

Health Effects of Coarse Particles

The coarse and fine fractions of particulate matter differ in their size, sources, and composition. While fewer studies have looked specifically at the health effects of coarse particles, the existing evidence suggests that these particles are also harmful to people. In the 2009 Integrated Science Assessment for Particulate Matter, EPA staff concluded that the available evidence is "suggestive for a causal relationship" between coarse particles and mortality, cardiovascular effects, and respiratory effects.[5]

A systematic review of more than 30 studies that investigated the effects of both fine and coarse particles found that for some health endpoints, the effects are even stronger for coarse particles than for fine particles.[31] For example, in studies of chronic obstructive pulmonary disease, asthma and respiratory admissions, coarse particles have a stronger or as strong an effect as fine particles. The review also found support for an association between coarse particles and cardiovascular hospital admissions. The review also cited toxicology studies showing that coarse PM exerts toxic effects.

The following studies serve as examples:

- A study in Spokane, Washington found that even low concentrations of coarse particle air pollution may cause symptoms of respiratory distress in children with asthma. Stronger associations with cough were reported for coarse particles than for fine particles. Increased phlegm and runny nose were associated with PM_{10} and $PM_{10-2.5}$.[32]

- A study of daily deaths and hospital admissions among the elderly in the Detroit metropolitan area found that for ischemic heart disease and stroke, the relative risks were higher for $PM_{10-2.5}$ than for $PM_{2.5}$.[33] A study in Toronto, Canada reported a stronger effect of $PM_{10-2.5}$ on asthma hospitalization among children compared with both $PM_{2.5}$ and PM_{10}.[34] $PM_{10-2.5}$ was significantly associated with hospital admissions for respiratory disease in Vancouver.[35]

- A multi-decade study reported that women living in areas with greater coarse particle concentrations had a higher risk of developing and dying from coronary heart disease. Coarse particles were associated with increased risk of fatal heart disease in women, especially older women, but not in men, though the effect was stronger for fine particles.[36]

- An analysis of 112 U.S. cities found that coarse PM was linked with higher risk of premature death from all causes, stroke and respiratory causes, even after controlling for levels of fine particles.[37]

- A study of 15 counties in California found that coarse particles were associated with all-cause and cardiovascular deaths, even after adjusting for $PM_{2.5}$ levels.[38]

Taken together, the existing evidence suggests that exposure to higher levels of coarse particulate matter can increase the risk of death, cardiovascular hospitalizations, and respiratory effects.

Most existing epidemiologic studies on coarse particles have been conducted in urban settings. However, we have known for a long time that agricultural dust can also be harmful. Two large reviews completed over a decade ago found serious respiratory health hazards in agricultural dust sources from exposure to infectious and non-infectious bioaerosols, other organic dusts, and mineral dusts.[39-40] Field workers exposed to mineral dusts from agricultural sources experience more acute and chronic bronchitis, chronic obstructive airways disease and interstitial lung disease.[41] Agricultural workers exposed to organic dusts have been found to have higher risk of allergic reactions, asthma, hypersensitivity pneumonitis and organic dust toxic syndrome.[42] Research that included examining the lungs of California farm workers found that their bronchioles had accumulation of dust particles, and thickening and inflammation in the respiratory tissues.[43]

Sandstorms and other dust events typically increase the concentration of coarse particulate matter much more than fine particulate matter. Therefore, studying these events provides information on the potential health effects of coarse particles of non-urban origin. For example, one study looked at the effect of Asian dust storms on hospital admissions in Taipei, Taiwan over an eight year period and found that dust storms were associated with increased rates of hospital visits for ischemic heart diseases (including heart attacks).[44] Other studies have linked dust events in Spain and Cypress with increased risk of hospitalization or death.[45-46] These studies add to the evidence of health effects of coarse particles and highlight that even coarse particles from non-urban environments can have important health effects.

Congress built into the Clean Air Act an orderly process for the regular review of the scientific evidence related to the health effects of air pollution. This review includes multiple rounds of peer review, including by the congressionally mandated panel of independent scientists – the Clean Air Scientific Advisory Committee (CASAC). I strongly urge you to preserve the authority of the EPA to periodically review and update the air quality standards as mandated by the Clean Air Act, including for PM_{10} and coarse particle pollution. The evidence of the harm from particulate matter pollution underscores how important it is for the EPA to update the nation's key pollution control tools on an ongoing basis — and for Congress to continue to allow them to do so.

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Mr. WHITFIELD. Thank you very much for your testimony.

I will recognize myself for 5 minutes of questions. Mr. Walke, you heard me in the very beginning talk about this concern about the lawsuits being filed and so forth, and has the Natural Resources Defense Council ever sued EPA over the Clean Air Act?

Mr. WALKE. Yes, sir, Mr. Chairman, we have.

Mr. WHITFIELD. Do you know how many times?

Mr. WALKE. You probably do if you have researched the question. I have not, though, sir.

Mr. WHITFIELD. Well, I haven't either but——

Mr. WALKE. No, I don't know.

Mr. WHITFIELD. And have you all been reimbursed for legal fees?

Mr. WALKE. When we win, yes.

Mr. WHITFIELD. Would you provide us with the number of times that you all have filed suits against EPA and the number of dollar value of the reimbursement for the legal fees?

Mr. WALKE. I will do so the best of my ability. NRDC was formed in 1970 or 1971, so——

Mr. WHITFIELD. Well, let us just say within the last 10 years.

Mr. WALKE. OK.

Mr. SHIMKUS. Mr. Chairman, will you yield?

Mr. WHITFIELD. Yes.

Mr. SHIMKUS. It would also be good to find out what was their compensation out of the judgment fund that paid their attorney fees.

Mr. WHITFIELD. Yes, the amount of the legal fee reimbursed. It comes out of judgment fund, though, doesn't it, or the agency funds?

Mr. WALKE. Sure. I mean, Mr. Chairman, I would just say that the law only provides our ability to go to court and regain fees when the government is breaking the law.

Mr. WHITFIELD. No, I understand.

Mr. SHIMKUS. Mr. Chairman, I just think we should have those. For whatever reason, we want those dollar amounts.

Mr. WHITFIELD. Yes. We won't get into a discussion.

Mr. RUSH. Mr. Chairman?

Mr. WHITFIELD. Yes?

Mr. RUSH. I would also like, if I might, ask the gentleman if he would include what his win-loss ratio is, the number of times he sued, the number of times he lost and the number of times he won against the EPA.

Mr. WHITFIELD. You want to know how many he won and how many he lost?

Mr. RUSH. Yes.

Mr. WHITFIELD. He wants to know how many you have won and how many you have lost.

OK. Anyway, so if you would—the number of lawsuits in the last 10 years, the amount of money that you have been reimbursed in legal fees when you have won, and how many cases you consider you won and how many you consider you lost.

Mr. WALKE. OK. It might take some time to do that, sir, so I will just ask your indulgence.

Mr. WHITFIELD. Yes, sir.

Mr. RUSH. Is it OK if we give him 5 years?

Mr. WHITFIELD. You and I may not be here in 5 years. Thank you so much.

Mr. Foglesong, now, you represent the National Cattlemen's Association. Is that correct?

Mr. FOGLESONG. The National Cattlemen's Beef Association, yes.

Mr. WHITFIELD. And are there cattle producers that are struggling with meeting the current coarse particulate matter standard?

Mr. FOGLESONG. You know, in particular, there are some of those, you know, in the Southwest. Arizona is a good example of that, you know, where they have got feed yards, and the expense that they incur to try to complex is just enough to break them. They just can't keep it going. But I think—and that what sticks in your mind, but understand that it can happen anyplace in the country. We had a map up there earlier that shows those places that are at risk, but I am from Illinois and we get 40 inches of rainfall but I will guarantee you that last week I was in that position because it hasn't rained there in 2 months and the wind was blowing and we are all doing work. So I think that is one of the things that is a challenge. Our outfit in Georgia, it was the same thing. We had the worst drought there in 100 years this spring. Driving up and down our country dirt roads, every one of them was out of compliance. So all across the country you run into that, yes, sir.

Mr. WHITFIELD. And there was great concern about the strengthening of this emission standard on coarse particulate matter because that would have changed the standard around the country and then there would have been areas in nonattainment and then there would be more enforcement mechanisms, and Mr. Rogers, you have experienced that personally, it sounds like. Is that correct?

Mr. ROGERS. Yes, sir, that is correct. We farm in Maricopa County in a nonattainment area.

Mr. WHITFIELD. So what enforcement mechanisms must you comply with as a result of being in a nonattainment area in this coarse particulate matter issue?

Mr. ROGERS. Agriculture in Maricopa County was deemed through modeling to be about 3 percent of the problem of the Maricopa County area, which is probably a 75-square-mile county. It is a very large county. We only have 15 counties in Arizona. And so we were deemed to be 3 percent. You know, you come to the table with EPA being the 500-pound gorilla because what they hold over the State's head is the Federal tax dollars, the highway dollars coming back to the State, so there is motivation through your local government to come to the table and participate and so that is what we have done. We have had to come to the table and design a program with EPA looking over our shoulder to make sure that every step of the way they agree with what you are doing to put together your SIP.

Mr. WHITFIELD. And could you just quickly go through a couple of——

Mr. ROGERS. Sure. We developed a best management practice program that is mandatory. Farmers do get to choose between practices under three different categories, diligent harvesting, cropland, non-cropland, so every part of my operation I have to be doing something and so it could include watering roads, it could include parking your tractors during high wind events where the wind gets to 26 miles an hour, speed limits on your farm roads where you have to regulate your own roads that you are in control of, waiting until there is moisture in the soil before you do tillage, waiting for rain to bring that moisture, or if you choose to irrigate, that is your option as well, but there is probably 40 best management practices that we had to come up with to help agriculture come to the table, to keep EPA happy and to keep our State happy because at 3 percent of the problem, they determined that we need to participate.

We do have a county just south of Phoenix, Pinal County, which has been recently designated as nonattainment. That is where the livestock operation is that we talked about before. That particular livestock operation has taken it upon themselves to figure out what they can do to get into attainment. It takes 4 gallons of water per day per cow to meet the standard, and it is going to be very costly for them to do that.

Mr. WHITFIELD. Forty gallons per cow per day?

Mr. ROGERS. Four gallons.

Mr. WHITFIELD. Four?

Mr. ROGERS. Four gallons, but it is a large operation so it is going to cost a lot of money, and with four gallons per day, they were able to bring that under control and so they are going to—as we move forward with bringing livestock into our program, they are actually working with EPA and the State and that will probably be a mandatory number.

Mr. WHITFIELD. Mr. Rush, you are recognized for 5 minutes.

Mr. RUSH. Mr. Walke, in your written testimony, you take issue with using the phrase “farm dust” as H.R. 1633 is named and say this bill is really an attempt to force EPA to ignore harmful soot pollution emitted overwhelmingly by industrial pollutants like coal-burning power plants, incinerators, chemical plants and diesel vehicles. Can you explain why you view this bill as a cover for abolishing the review of health standards for industrial pollution?

Mr. WALKE. Certainly, Mr. Rush. It is notable that the word “farm dust” doesn’t actually appear in the bill other than its title. The operative legal term of the bill in its most harmful bill is in section 3 in the definition of nuisance dust, and it is simple so I will just tell you the highlights. Nuisance dust means particulate matter from activities typically conducted in rural areas or wind-blown dust. Now, I just selected out some of those from a string. You know, as I showed in my testimony, activities typically conducted in rural areas include power plants, incinerators and manufacturing facilities and diesel vehicles, and, you know, by this very short, crisp and overbroad definition, all of those activities will be defined as particulate matter that could not be regulated by the Federal Government if the States are doing so, and the States are doing so, so this bill would deregulate from Federal Clean Air Act authority those activities. That has sweeping, sweeping implications that certainly aren’t suggested by the farm dust title and don’t even appear to be intended by some of the members from their statements here this morning.

Mr. RUSH. Thank you very much.

Mr. Chairman, earlier there was a line of questioning that I thought was quite interesting, and it covered areas of legal fees and the amount of money recouped through legal representation, and in fairness and in full disclosure, I want to ask the same question of all the members of the panel. Please, if you will, provide the lawsuits brought against the EPA by the American Farm Bureau Federation, the National Stone, Sand and Gravel Association and the National Cattlemen's Beef Association, and the fees that were obtained as a result of those legal actions. And also, I understand that Mr. Blase is being paid by the Coarse Particulate Matter Coalition, and would you provide to the committee the full amount that you are being paid to represent them?

Mr. Chairman, I think that that is for full disclosure, and would you please provide those amounts for the record?

Mr. OLSON. [Presiding] Without objection, so ordered.

Mr. FOGLESONG. Sir, point of clarification. Do you want to know also what we spent?

Mr. RUSH. No, I want to know the fees that you were provided, and I think that would cover the same territory that was requested of Mr. Walke. We just want to make sure that there is full disclosure and there is fair disclosure in terms of fees that organizations are able to—or remunerations from the EPA and the matter of lawsuits.

Mr. BURGESS. Will the gentleman yield?

Mr. RUSH. I don't know if I have any time.

Mr. BURGESS. Well, I would be interested in what they spent. If we are going to compile that information, let us be complete.

Mr. RUSH. Well——

Mr. BURGESS. I would be interested in what you spent. I will add that to Mr. Rush's request.

Mr. RUSH. And so we will also add that to Mr. Walke's request, what is the amount that your organization spent, the amount that you spent in terms of court action.

Mr. WALKE. On the litigation?

Mr. RUSH. Yes, on the litigation.

Mr. OLSON. Everybody follow that? Without objection, so ordered.

Mr. RUSH. I yield back.

Mr. OLSON. The gentleman's time is expired, and the chair recognizes the gentleman from Illinois, Mr. Shimkus.

Mr. SHIMKUS. Thank you. It is great to have the panel.

Can anyone define for me what "at this time" means? Mr. Foglesong, do you know what "at this time" means?

Mr. FOGLESONG. At this time.

Mr. SHIMKUS. OK. I am making my point. The point is, when the Assistant Administrator was here, in her testimony she said—I read the letter and of course Administrator Jackson said "I am prepared to propose a retention with no revision of the current PM_{10} standard form when it is sent to OMB for interagency review," and her response was, we are going to abide by this at this time. "At this time" means today, right? And there could be tomorrow would not be at this time. Tomorrow would be tomorrow. Isn't that, for Mr. Foglesong and Mr. Rogers, Mr. Lien, isn't that part of the risk, the uncertainty that you are dealing with?

Mr. ROGERS. That is completely part of the risk, and as the monitoring network is developed across this country where there may not be that intense monitoring network today, as those monitors are enhanced, that is where “at this time” comes into play. There may be a speed limit across this country but if there is not an officer there to pull you over, he doesn’t know if you went five over or not. It is a monitoring issue.

Mr. SHIMKUS. And if you could pull up Mr. Blase’s map on the proposal? Half of the country under a proposed—that is additional risk to agricultural America.

Everybody knows in this country jobs are impacted, and one of the major impacts is risk, is uncertainty. That is why we are doing this today, to at least give the agriculture sector some certainty.

Now, Mr. Lien, you are from the sand and gravel. Two weeks ago, I read, you know, the only sector in this country that created jobs over the last quarter? You should.

Mr. LIEN. I would say that——

Mr. SHIMKUS. It was the mining industry.

Mr. LIEN. The mining industry.

Mr. SHIMKUS. The mining industry was the only sector in this country that created jobs, and just yesterday, Caterpillar gave its quarterly report, and Caterpillar did well. You know what Caterpillar sells? Mining equipment. So there is a debate on rules and regs and the cost of doing business based upon uncertainty and job creation, and all this is about is providing certainty. I would agree with Mr. Hurt that we can— we are legislators. We sure can legislate when it has harm to job creation in parts of the country. If she would pull up my harvester cutting beans? Those are coarse particulates. They are probably bigger than the PM_{10}. Does anyone know how far those coarse particulates travel?

Mr. ROGERS. It depends on if there is wind activity or not, but those coarse particulates that you can see normally will settle back down within several hundred feet.

Mr. SHIMKUS. And that is all part of the rural debate because there are not people around. In rural America, it is not like a city. It is not a metropolitan area. In my new Congressional district, parts of 33 counties, I think my biggest community is going to have 33,000 people in it. It is one-third of the State of Illinois. So if we are farming in my district, which we do, and we are cutting beans, those coarse particulates are going to fall to the ground way before they reach any exposure, especially with the air conditioned cabs these guys have now, so even the person on the harvester is not going to be affected.

Let me go to Mr. Walke real quick. Administrator Jackson in essence said that the PM_{10} standard really by this protects human health, the standard today. That is why she is not going to submit to OMB. Is that the NRDC’s position?

Mr. WALKE. We are prepared to accept that when she proposes the rulemaking to not change the standard if——

Mr. SHIMKUS. So your testimony is that you will not sue if this continues to be promulgated and the Administration keeps this as the standard?

Mr. WALKE. Mr. Shimkus, that is the first time that word has come out, and it was your mouth, not mine.

Mr. SHIMKUS. At this time?

Mr. WALKE. At this time, today, now, I am not going to discuss litigation before I——

Mr. SHIMKUS. So you might bring this.

Mr. WALKE. Mr. Shimkus, if you want—if this is going to be a——

Mr. SHIMKUS. No, I am just asking——

Mr. WALKE. Let us talk about speculation——

Mr. SHIMKUS. Reclaiming my time. Mr. Walke, you are very cavalier with the lives of rural America and agricultural America, saying in respect to the testimony received that the PM_{10} standard affects their jobs and their economy so I am just addressing the point that the NRDC is not on record as saying whether they will or will not——

Mr. WALKE. If I may, Mr. Shimkus, this bill removes Federal Clean Air Act authority——

Mr. SHIMKUS. And I yield back my time.

Mr. WALKE [continuing]. Over 80 percent of America. Eighty percent of America has Federal——

Mr. SHIMKUS. Mr. Chairman, I yield back my time.

Mr. WHITFIELD. The gentleman yields back his time.

At this time I recognize the——

Mr. RUSH. Mr. Chairman, Mr. Chairman, Mr. Chairman.

Mr. WHITFIELD. For what purpose does Mr. Rush——

Mr. RUSH. Regular order, Mr. Chairman.

Mr. WHITFIELD. Regular order?

Mr. RUSH. Regular order. Mr. Shimkus asked the gentleman a question.

Mr. SHIMKUS. I did not, Mr. Rush.

Mr. RUSH. Will the reporter please read the last question that Mr. Shimkus asked?

Mr. WHITFIELD. Can we just stipulate that Mr. Shimkus did ask a question——

Mr. RUSH. But he——

Mr. WHITFIELD [continuing]. His time expired and then he decided he didn't want to——

Mr. RUSH. No. He cut him off in the middle of——

Mr. SHIMKUS. No, that is not true.

Mr. RUSH. He cut him off in the middle of the answer.

Mr. SHIMKUS. That is not true.

Mr. RUSH. Will you please give the witness the courtesy of answering the question? We do that as a formality in this subcommittee.

Mr. BURGESS. Mr. Chairman, if you will yield to me, I will yield the witness 30 seconds to respond.

Mr. WHITFIELD. Well, Dr. Burgess, I am going to recognize you for 5 minutes for questions and you can do what you want to do with it.

Mr. BURGESS. The committee has a long history of treating its witnesses well. I want to recognize the gentleman for 30 seconds to respond.

Mr. WALKE. Dr. Burgess, thank you for your professional courtesy. I will only take 30 seconds of your 5 minutes.

The point I wanted to make in responding to Mr. Shimkus was that in contrast to imaginary problems or imaginary lawsuits that no one has any intention of bringing, this bill, if adopted into law, would remove Federal Clean Air Act authority over 80 percent of America, which is defined as rural by any number of government metrics. That has nothing to do with farm dust but it does have to do with deregulating industrial pollution from power plants that causes premature deaths and heart attacks, and that is the only thing I was trying to say.

Mr. BURGESS. OK. Reclaiming my time.

Can we go back to that map that had half the country in blue? Can we recall that slide? You know, I listened to the testimony of Dr. Wellenius, and in your written testimony, you talked about most existing epidemiologic studies in coarse particles have been conducted in urban settings. Most of the urban settings actually, though are removed from that map that is covered by the footprint of the coloration. Is that correct?

Mr. WELLENIUS. So we do the studies where we have monitor data existing primarily and the EPA sites those monitors. From the research side, we don't have a say as to where those monitors are sited. So there are parts of the country that——

Mr. BURGESS. The real hot spots for cardiovascular disease, lung disease, interstitial lung disease, industrial pneumoconiosis, if you were to color those in on the maps, they likely would be for the most part outside the blue footprint. Is that not correct?

Mr. WELLENIUS. So there are several areas that are in blue there that do have high air pollution. There are parts of Texas, parts of Arizona, parts of southern California that do have high air pollution.

Mr. BURGESS. Texas is a huge State. Houston has a problem. It is miniscule. It can be ignored most of the time as we in the Dallas-Fort Worth area know well.

But I just would make the point, is there a cost-benefit analysis you have done? I mean, you want to implement something on vast swaths of relatively low density population. Have you done a cost-benefit analysis on how this would affect people's livelihoods and the status of people overall, the overall health of people, and how can we be sure sitting here on this committee that you are not double counting some of these people that are saved in your studies? How can we be sure you are not double counting those individuals?

Mr. WELLENIUS. Right. So——

Mr. BURGESS. So there are people that might have been saved anyway by the effects of the Clean Air Act where this additional regulation would have only miniscule positive or negative effect.

Mr. WELLENIUS. Yes. Thank you. You asked me first the question of have I done a cost-benefit analysis, and the response is, I have not. The scientific committee is large and there are those of us that deal with the health effects of air pollution, doing the health side, and there are people in the cost-benefit business that certainly take those effects that we estimate and also incorporate the costs of regulation and the costs of lives averted or the hospitalizations averted. I am not specifically in that area, so no, I have not conducted that cost-benefit analysis.

Mr. BURGESS. OK, so we don't know is the answer to that question.

Now, Administrator McCarthy had a rather large compendium of documents next to her as she testified, and this is described as the Integrated Science Assessment for Particulate Matter. Are you familiar with this document?

Mr. WELLENIUS. Yes, I am.

Mr. BURGESS. My read of at least a portion of this is that there is insufficient evidence to determine that coarse particulate matter causes health effects. That is written on page 219, third heading, maybe six lines from the end of the page: "To date, a sufficient amount of evidence does not exist in order to draw conclusions regarding the health effects and outcomes associated with long-term exposure to PM_{10}." Is that accurate?

Mr. WELLENIUS. That is accurate. For long-term effects of coarse particles, there is next to no evidence in support of long-term health effects.

Mr. BURGESS. Well, and certainly we will stipulate your credentials and the credentials of everyone at the witness table today, but one of the tasks that we face is how do you approach regulation in a way that does not further cripple the economy, allows witnesses at the other end of the table to continue their livelihoods and to support their employees and their families. You know, forgive me, it looks like we are going on some pretty thin evidence here with some fairly sweeping regulations, and I guess that is overall what the concern here is of the committee today, and I think the reason that Representative Noem brought the legislation forward.

I thank the gentleman for his indulgence and I will yield back the balance of my time.

Mr. WHITFIELD. Thank you, Dr. Burgess.

Mr. WELLENIUS. Mr. Chairman?

Mr. WHITFIELD. Yes?

Mr. WELLENIUS. Thank you. So I agree, you do have an enviable task and one that I am happy you are doing rather than me in terms of balancing the public health benefit versus how to impose those regulations in a sensible manner. You focused on the long-term effects of long-term exposure to coarse particulate matter. There is evidence on the short-term exposure that that is associated with increased hospitalizations, increased premature death. We need more research for sure but the current evidence as the Integrated Science Assessment concludes is suggestive of causal association. Thank you.

Mr. WHITFIELD. Mr. Olson, you are recognized for 5 minutes.

Mr. OLSON. I thank the chair. More importantly, I thank the witnesses for your time and expertise today. And I am from southeast Texas, Sugar Land, Texas. There is no equal. As you guys know, Texas, all of Texas has suffered an historic drought, excessive heat, over 100 degrees for almost the entire month of August in Houston, which is unprecedented, and wildfires all across our State, and ranchers and farmers have been disproportionately hit by these disasters. And the theme of this series of hearings that this subcommittee and the full committee has had is about the uncertainty created by the administration's regulatory agenda. I want to talk a little bit about that.

I mean, there has been some testimony in the prior panel and even on this panel about uncertainty and the fact that, you know, EPA's promise not to revise the standards for 5 years provides more certainly than a law, H.R. 1633, would provide, and I am curious if some of the panelists honestly believe that the Executive Branch agency action provides more certainty than a law passed under our Constitution by Congress. I am just asking for a simple yes or no answer. Mr. Foglesong?

Mr. FOGLESONG. I don't believe that is exactly how I would put that out. We look to you all because we vote you into Congress and we expect you to look out for us.

Mr. OLSON. It sounds like Congress over the Executive Branch agency.

Mr. FOGLESONG. Absolutely.

Mr. OLSON. Yes, sir.

Mr. ROGERS. I would agree.

Mr. OLSON. Yes, sir. Mr. Lien?

Mr. LIEN. I would agree.

Mr. OLSON. Thank you, sir.

Mr. BLASE. I would agree.

Mr. VON WACHTER. Sir, if your question is whether regulation reduces uncertainty, that is true. Whether uncertainty has an impact on economic activity, that is from a scientific point of view an open question.

Mr. OLSON. My question is, what provides more uncertainty, Executive Branch agency regulations or regulations by laws passed by Congress? I mean, which one provides more certainty? What is the more difficult process, going through the Constitution or going through the Executive Branch? I think the answer is the Constitution. Wouldn't you agree? Yes or no.

Mr. VON WACHTER. I think you are better qualified than me to answer that question.

Mr. OLSON. You are an American. You have an opinion.

Mr. Walke?

Mr. WALKE. You know, as a matter of law, they are equally lawful. If the legislative period of relief is short like this one and the administrative period is longer, than it is the longer period.

Mr. OLSON. OK. And Dr. Wellenius?

Mr. WELLENIUS. I have no comment.

Mr. OLSON. No comment whatsoever? OK.

My final round of questions is for Mr. Blase. Mr. Blase, can you give a brief history of the last round of the PM revision and this one, and specifically, is it possible for us to be in the exact same position in 5 years with farmers, ranchers and other rural businesses if the EPA chooses to lower the standard on dust?

Mr. BLASE. Oh, yes, absolutely. That is what happened the last time. It is kind of a complicated thing and I won't go into all the details, but there has been a debate over—you know, the current standard for PM_{10} includes PM2.5. It includes fine and coarse. So there has been a debate over whether the fine should just be kicked out and the coarse PM standard should only be the top 2.5 to 10. I think my personal view is, that is probably what is going to happen in the next review. But in the last review, what happened was, EPA took a stab at doing just that and regulating true coarse PM. The problem with that was the concentration limit was way lower than most of us thought we could meet. Therefore, there was an exemption proposed for agriculture and mining activities. In the end, EPA threw up its hands and said we don't know what the numbers should be, we don't know what the exemptions should be so we are going to retain the current standard. But yes, the proposal—if the point is the final rule can look quite different from the proposal, the last reviews proves that.

Mr. OLSON. One final question about the rulemaking. I have introduced a bill, H.R. 1341, which is called the Establishing Public Accountability Act. It is very simple. It just requires the EPA to do some study of the impact of jobs on regulations and rulemaking, the proposed changes, and it requires them to do this before the public comment period so the public will have the opportunity to review what EPA is proposing. And so I just want to ask all six of you again, seven actually, just yes or no, do you think that bill will be something you support? Mr. Foglesong?

Mr. FOGLESONG. Sure.

Mr. ROGERS. Yes.

Mr. LIEN. Yes.

Mr. BLASE. Yes.

Mr. VON WACHTER. That was a bit quick for me, but it seems that if EPA is supposed to look at both the costs and benefits of their regulation, that that seems a good idea.

Mr. OLSON. I will put you down as yes.

Mr. Walke?

Mr. WALKE. Is that the Regulatory Accountability Act, Congressman?

Mr. OLSON. Establishing Public Accountability, H.R. 1341. I can get you a copy of it. But it is very simple, just the public has the right to know, you know, whether or not this regulation, this new rulemaking, what the impact is going to be on American jobs. Either is going to create jobs or kill jobs, and that is what we need to address here. I think that is the biggest challenge our country is facing is the lack of jobs in this recession.

Mr. WALKE. Well, I would love to read the bill before answering that question, if I might.

Mr. OLSON. We will hook you up.

And finally, Dr. Wellenius.

Mr. WELLENIUS. Again, I am here to comment on the science and the health effects, not on the policy.

Mr. OLSON. Thank you, sir.

And that is. I yield back my time.

Mr. WHITFIELD. Thank you, Mr. Olson.

Mr. Pompeo, you are recognized for 5 minutes.

Mr. POMPEO. Thank you, Mr. Chairman.

Mr. Blase, Mr. Walke said that no one had contradicted sort of the legal statements that Ms. McCarthy set out, and you are counsel, so I thought maybe you could help me. He also made the statement that 80 percent of Federal regulatory would be stripped away by this bill. Would you care to comment on what you think this legislation would do with respect to the scope of the EPA's ability to regulate?

Mr. BLASE. Yes, I think it is a carve-out for crustal coarse particulate matter and nothing else is involved. I mean, power plants, tailpipe emissions, it is all fine PM. I don't believe these changes are necessary. People think changes are necessity to this legislation to exclude fine PM. My group would probably support that. But as I read it right now, I think it is confined to coarse crustal emissions, which is what is supported by the science and as it should be.

Mr. POMPEO. So your legal analysis is very different from Mr. Markey's comments, Ms. McCarthy's statements and Mr. Walke's testimony.

Mr. BLASE. Very different, yes, sir.

Mr. POMPEO. So I have power plants not excluded, school bus tailpipes, no impacts. This notion of because they are windblown they will all get caught up in this and we won't be able to regulate them so they will become law. Nonsense.

Mr. BLASE. No, I don't believe it covers those at all.

Mr. POMPEO. OK. Great. I yield back the balance of my time.

Mr. WHITFIELD. Thank you, Mr. Pompeo.

Mr. Griffith, you are recognized for 5 minutes.

Mr. GRIFFITH. Dr. von Wachter, your testimony mentioned that those who lose their job can experience health problems that can lead to significant reductions in life expectancy. I have been concerned about a number of EPA regulations related to similar things like what happens when you raise the cost of electricity and the people my district can't afford to heat their homes. So I would just ask you in regard to the job loss and then significant reductions in life expectancy, can you explain that and tell me what you mean by that, and can it actually shorten a worker's life?

Mr. VON WACHTER. Absolutely. I would be happy to clarify. So what we have done, we have looked at workers displaced in large downsizing Pennsylvania in the early 1980s, and these were workers at, you know, relatively large, stable firms and stable jobs and they had very long-lasting earnings losses, and over the next 20 years they also had increases in mortality rates, and those who had the larger earnings losses had the higher increases in mortality rates, and if you add those 20 years up and assumes that the mortality effect lasts until the end of our lives, which seems to be a fine assumption because the effects are very stable, then you get to 1.5-year losses in life expectancy. So this one-time shock, what seems to be a shock to earnings but also lifestyle, can have these long-term effects. Now, Pennsylvania in the early 1980s is a very hard-hit State with the reduction in steel and mining at that time, so I would characterize that as worst-case scenario.

Mr. GRIFFITH. So what you are saying is, if we are going to study the health impacts of regulations, we ought to also look at the unintended consequences if it does have a downturn in jobs that that could actually negative impact the health of workers and of a particular community.

Mr. VON WACHTER. Oh, absolutely. So regulations affecting certain businesses certainly could lead to job displacement that has been shown to lead to job displacement and this displacement takes place in a very depressed economic environment, that they could have large costs with the affected workers in terms of earnings but also other outcomes.

Mr. WHITFIELD. Mr. Blase, did you want to respond?

Mr. BLASE. Yes, I have a brief response to that. Our coalition has spent some time looking at what is a great developing body of scientific literature that suggests that unemployment itself causes adverse health effects, which I don't think takes an epidemiology study to show for most of us. However, we have pressed that point with the agency but have been told repeatedly that they have no legal authority to consider that aspect. So we will be making the point in our comments on the upcoming proposal and in other forums, but as of now, EPA is telling us, you know, the health effects of unemployment cannot be considered in this equation.

Mr. GRIFFITH. And I know you don't have any study on it but I think that plays into my fear that when we raise the cost of goods and services, particularly goods—again, I get back to heating but also we are talking about these things that could raise the cost of food products. That makes it particularly hard on the working poor or the unemployed, and that too would by common sense seem to have a health impact. Wouldn't you agree?

Mr. BLASE. Yes, I would.

Mr. GRIFFITH. I thank you very much for being here and all your testimony, and I appreciate, Mr. Walke, there may be a way to fix that concern of us although based on the definitions, I recognize that it may not need fixing. That being said, Mr. Chairman, I yield back my time.

Mr. WHITFIELD. The gentleman yields back.

Mr. Rush, do you seek recognition?

Mr. RUSH. Mr. von Wachter and Mr. Blase kind of touched on something I am interested in. You said unemployment has health consequences for the unemployed. Is that correct?

Mr. VON WACHTER. So what we can establish is that the job loss has an effect on health.

Mr. RUSH. On health.

Mr. VON WACHTER. Establishing that unemployment has an effect is very difficult, because once you lose your job being unemployed is partly a choice of the worker, so it is not clear what is cause and effect at that point, but job losses have been shown to have an effect on health in the short and long run. It is possible——

Mr. RUSH. Did your study include the chronically unemployed and the underemployed?

Mr. VON WACHTER. As I said, it is difficult to establish those effects for those who are chronically unemployed or currently underemployed just from a statistical point of view. We don't know what the right comparison group is. Now, presumably, from what we know, these people are unlikely to do better but one has to be very careful because unemployment is itself an outcome. For example, a sick worker might become unemployed and you don't want to conclude that unemployment makes you sick, but if you are displaced from a large downsizing, presumably you were a good worker and that being displaced from the downsizing doesn't make you sick, so that is a statement about causality that is easier to back up.

Mr. RUSH. I yield back, Mr. Chairman.

Mr. WHITFIELD. Thank you, Mr. Rush, and thank all of you for your time and giving us your entire testimony as well as your oral testimony. We look forward to working with all of you as we move forward, and thank you very much for attending, and with that, the hearing is concluded and the record will remain open for 10 days for any additional materials. Thank you.

[Whereupon, at 1:35 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

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CHAIRMAN

HENRY A. WAXMAN, CALIFORNIA
RANKING MEMBER

ONE HUNDRED TWELFTH CONGRESS

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November 9, 2011

The Honorable Gina A. McCarthy
Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Dear Assistant Administrator McCarthy,

Thank you for appearing before the Subcommittee on Energy and Power on Tuesday, October 25, 2011, to testify at the hearing on H.R. 1633, the "Farm Dust Regulation Prevention Act of 2011."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for 10 business days to permit Members to submit additional questions to witnesses, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions by the close of business on Monday, November 28, 2011. Your responses should be e-mailed to the Legislative Clerk, in Word or PDF format, at Allison.Busbee@mail.house.gov.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,

Ed Whitfield

Ed Whitfield
Chairman
Subcommittee on Energy and Power

cc: Bobby L. Rush, Ranking Member,
Subcommittee on Energy and Power

Attachment

Subcommittee on Energy and Power
H.R. 1633, the "Farm Dust Regulation Prevention Act of 2011"
October 25, 2011
Additional Questions for the Record

The Honorable Ed Whitfield

1. Has EPA sent its proposed rule addressing particulate matter to the Office of Management and Budget (OMB) for interagency review? If not, when does EPA expect to send it to OMB?
2. What is EPA's current schedule for proposing its particulate matter rule?
3. What is EPA's current schedule for issuing a final particulate matter rule?

Subcommittee on Energy and Power
H.R. 1633, the "Farm Dust Regulation Prevention Act of 2011"
October 25, 2011
Additional Questions for the Record

The Honorable Ed Whitfield

1. Has EPA sent its proposed rule addressing particulate matter to the Office of Management and Budget (OMB) for interagency review? If not, when does EPA expect to send it to OMB?

2. What is EPA's current schedule for proposing its particulate matter rule?

3. What is EPA's current schedule for issuing a final particulate matter rule?

The Clean Air Act requires a review of each of the six National Ambient Air Quality Standards (NAAQS) pollutants every five years. Our last review of the particulate matter (PM) standards was completed in 2006. EPA recently released a schedule for completing its review of the NAAQS for PM that stated our goal of issuing a proposal in June 2012 and taking final action in June 2013. We have not yet sent a proposed rule to OMB. EPA will solicit public comment after issuing the proposal and will take that input into account as it completes its review. Particles in the air we breathe can cause Americans to get sick, and can even cause premature death. EPA's review, which is required under the Clean Air Act, is necessary to ensure that the air quality standards remain protective of public health and the environment.

As you know, EPA Administrator Jackson committed in an October 14, 2011, letter that EPA is prepared to propose to keep the PM10 NAAQS as it is, with no change. This existing standard has been in effect since 1987.

FRED UPTON, MICHIGAN
CHAIRMAN

HENRY A. WAXMAN, CALIFORNIA
RANKING MEMBER

ONE HUNDRED TWELFTH CONGRESS
Congreſs of the United States
Houſe of Repreſentatives
COMMITTEE ON ENERGY AND COMMERCE
2125 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515–6115

Majority (202) 225–2927
Minority (202) 225–3641

November 9, 2011

Mr. Steve Foglesong
Immediate Past President
National Cattlemen's Beef Association
1301 Pennsylvania Avenue, N.W., Suite 300
Washington, D.C. 20004

Dear Mr. Foglesong,

Thank you for appearing before the Subcommittee on Energy and Power on Tuesday, October 25, 2011, to testify at the hearing on H.R. 1633, the "Farm Dust Regulation Prevention Act of 2011."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for 10 business days to permit Members to submit additional questions to witnesses, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

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Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,

Ed Whitfield

Ed Whitfield
Chairman
Subcommittee on Energy and Power

cc: Bobby L. Rush, Ranking Member,
Subcommittee on Energy and Power

Attachment

Subcommittee on Energy and Power
H.R. 1633, the "Farm Dust Regulation Prevention Act of 2011"
October 25, 2011
Additional Questions for the Record

The Honorable Ed Whitfield

1. Following up on the litigation-related questions from Majority and Minority Members at the Oct. 25 hearing, please identify all lawsuits filed by the National Cattlemen's Beef Association pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.) against the EPA during the last 5 years, and for each such lawsuit state whether NCBA prevailed in the litigation, and the amount, if any, NCBA was reimbursed in legal fees or other costs or expenses under statutory cost or fee provisions.

BEEF USA
National Cattlemen's
Beef Association
Cattlemen • Leadership • Solutions

Nov. 21, 2011

The Honorable Fred Upton
Chairman
House Energy & Commerce Committee
2125 Rayburn House Office Building
Washington, D.C. 20515

The Honorable Henry Waxman
Ranking Member
House Energy & Commerce Committee
2322A Rayburn House Office Building
Washington, D.C. 20515

Mr. Chair and Mr. Ranking Member,

Below is the response to the Committee's question regarding litigation the National Cattlemen's Beef Association (NCBA) has filed against the U.S. Environmental Protection Agency (EPA) over the past five years.

The Honorable Ed Whitfield

1. Following up on the litigation-related questions from Majority and Minority Members at the Oct. 25 hearing, please identify all lawsuits filed by the National Cattlemen's Beef Association pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.) against the EPA during the last 5 years, and for each such lawsuit state whether NCBA prevailed in the litigation, and the amount, if any, NCBA was reimbursed in legal fees or other costs or expenses under statutory cost or fee provisions.

    - National Cattlemen's Beef Association v. EPA, case No. 06-1410, filed December 15, 2006 in the US Court of Appeals for the District of Columbia Circuit. Petition for Review of final rules promulgated by the US EPA, published October 17, 2006 and concerning (1) revision of the National Ambient Air Quality Standards for particulate Matter and (2) Revisions of Ambient Air Monitoring Regulations Related to Particulate Matter, 71 Fed. Reg. 61,236. This case was consolidated into: American Farm Bureau Federation v. EPA, 559 F.3d 512 (D.C. Circuit 2009) Status: denied (February 24, 2009).

    - National Cattlemen's Beef Association v. EPA, Docket No. 07-1227, filed August 22, 2007 in the US Court of Appeals for the District of Columbia Circuit. Petition for Review of regulations promulgated by the EPA under the Clean Air Act known as the Clean Air Fine Particle Implementation Rule, 72 Fed. Reg. 20,568 (April 25, 2007). Status: pending

    - Coalition for Responsible Regulation, Inc. v. U.S. Environmental Protection Agency, Case No. 09-1322, filed Dec. 23, 2009 in the US Court of Appeals for the District of Columbia Circuit. Petition for Review of EPA's final rule published in the Federal Register at 74 Fed. Reg. 66,496 et seq. (Dec. 15, 2009) and titled "Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean air Act, Final Rule." Status: pending

    - Coalition for Responsible Regulation, Inc. v. U.S. Environmental Protection Agency, Case No. 10-1073, filed April 2, 2010 in the US Court of Appeals for the District of Columbia

Circuit. Petition for Review of the final action of the US EPA published in the Federal Register at 75 Fed. Reg. 17004 et seq (April 2, 2010) and titled "Reconsideration of the Interpretation of Regulations that Determine Pollutants Covered by Clean Air Act Permitting Programs." Status: pending (consolidated with CRR case above)

- Coalition for Responsible Regulation, Inc. et. al. v. U.S. Environmental Protection Agency, Case No. 10-1092, filed May 7, 2010 in the US Court of Appeals for the District of Columbia Circuit. Petition for Review of the final action of the US EPA published in the Federal Register at 75 Fed. Reg. 25,324 et seq (May 7, 2010) and titled "Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, Final Rule." Status: pending (consolidated with CRR cases above)

- Coalition for Responsible Regulation, Inc. et. al. v. U.S. Environmental Protection Agency, Case No. 10-1132, filed June 3, 2010 in the US Court of Appeals for the District of Columbia Circuit. Petition for Review of the final action of U.S. EPA published in the Federal Register at 75 Fed. Reg. 31, 514 (June 3, 2010) and titled "Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule." Status: pending (consolidated with CRR cases above)

- Coalition for Responsible Regulation, inc. et al.,. v. U.S. Environmental Protection Agency, Case 10-1234, filed November 17, 2010 in the US Court of Appeals for the District of Columbia Circuit. Appeal of EPA's denial of CRR's Petition for Reconsideration of the final rule titled "Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean air Act, Final Rule" based on the Climategate disclosures. Status: pending

- Coalition for Responsible Regulation, Inc. et. al. v. U.S. Environmental Protection Agency, Case Nos. 09-1322, 09-1092, 1073, filed September 15, 2010 in the US Court of Appeals for the District of Columbia Circuit. Motion for Stay of each of the above consolidated cases. Status: denied (Dec. 10, 2010). Court held that petitioners had not shown that the alleged harms were "certain" or would "directly" result from the greenhouse gas regulations sought to be enjoined.

- Coalition for Responsible Regulation, Inc. et. al. v. U.S. Environmental Protection Agency, Case Nos. 09-1322, 09-1092, 1073, filed September 30, 2011 in the US Court of Appeals for the District of Columbia Circuit. Request for Judicial Notice of EPA's inconsistent positions and questionable science that are the foundation of EPA's greenhouse gas regulations as revealed by last September's Inspector General's report. Status: pending

- The Florida Cattlemen's Association and the National Cattlemen's Beef Association v. Lisa P. Jackson, and the US Environmental Protection Agency, Case 4:11-cv-00177-RH-WCS, filed April 28, 2011 in the US District Court for the Northern District of Florida Tallahassee Division. Complaint filed seeking declaratory and injunctive relief pursuant to the federal Administrative Procedures Act, 5 U.S.C. section 701-706, challenging the EPA rule entitled Water Quality Standards for the State of Florida's Lakes and Flowing Waters, 40 C.F.R. Part 131. The case was consolidated into the Florida Wildlife Federation, Inc. et al v Lisa P. Jackson, Case No. 4:08cv324-RH/WCS. Status: pending

NCBA has not sought litigation expenses under the Equal Access to Justice Act or any other statutory cost or fee provisions.

Thank you,

Steve Foglesong
Immediate Past President

cc'd

The Honorable Ed Whitfield
The Honorable Bobby Rush

FRED UPTON, MICHIGAN
CHAIRMAN

HENRY A. WAXMAN, CALIFORNIA
RANKING MEMBER

ONE HUNDRED TWELFTH CONGRESS
Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
2125 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515–6115

Majority (202) 225–2927
Minority (202) 225–3641

November 9, 2011

Mr. Kevin Rogers
President
Arizona Farm Bureau
325 South Higley Road, Suite 210
Gilbert, AZ 85296

Dear Mr. Rogers,

Thank you for appearing before the Subcommittee on Energy and Power on Tuesday, October 25, 2011, to testify at the hearing on H.R. 1633, the "Farm Dust Regulation Prevention Act of 2011."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for 10 business days to permit Members to submit additional questions to witnesses, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions by the close of business on Monday, November 28, 2011. Your responses should be e-mailed to the Legislative Clerk, in Word or PDF format, at Allison.Busbee@mail.house.gov.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,

Ed Whitfield

Ed Whitfield
Chairman
Subcommittee on Energy and Power

cc: Bobby L. Rush, Ranking Member,
Subcommittee on Energy and Power

Attachment

Subcommittee on Energy and Power
H.R. 1633, the "Farm Dust Regulation Prevention Act of 2011"
October 25, 2011
Additional Questions for the Record

The Honorable Ed Whitfield

1. Following up on the litigation-related questions from Majority and Minority Members at the Oct. 25 hearing, please identify all lawsuits filed by the American Farm Bureau Federation (Farm Bureau) pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.) against the EPA during the last 5 years, and for each such lawsuit state whether the Farm Bureau prevailed in the litigation, and the amount, if any, the Farm Bureau was reimbursed in legal fees or other costs or expenses under statutory cost or fee provisions.

RESPONSE TO QUESTIONS FROM HEARING ON H.R. 1633—OCTOBER 25, 2011

QUESTION FROM MR. WHITFIELD:

1. Following up on the litigation-related questions from Majority and Minority Members at the Oct. 25 hearing, please identify all lawsuits filed by the American Farm Bureau Federation (Farm Bureau) pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.) against the EPA during the last 5 years, and for each lawsuit state whether the Farm Bureau prevailed in the litigation, and the amount, if any, the Farm Bureau was reimbursed in legal fees or other costs or expenses under statutory cost or fee provisions.

RESPONSE OF AMERICAN FARM BUREAU FEDERATION

The American Farm Bureau Federation has brought the following 2 lawsuits against EPA during the past 5 years on issues under the Clean Air Act:

(1) *AFBF et. al v. EPA*, D.C. Circuit Court of Appeals, Consolidated Docket No. 06-1410. Lawsuit (filed Dec. 2006) challenging EPA NAAQS standards for PM10. The case is closed; AFBF did not prevail.

(2) *Coalition for Responsible Regulation, et.al v. EPA*, D.C. Circuit Court of Appeals, Consolidated Docket 09-1332. Lawsuit challenging EPA's regulation of greenhouse gases. The case is pending.

NATIONAL STONE, SAND & GRAVEL ASSOCIATION

Natural building blocks for quality of life

November 10, 2011

The Honorable Ed Whitfield
Chairman
House Subcommittee on Energy and Power
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515-6115

Dear Mr. Chairman:

Thank you for inviting Mr. Pete Lien to testify on behalf of the National Stone, Sand & Gravel Association at the October 25, 2011, hearing on H.R. 1633, the "Farm Dust Regulation Prevention Act of 2011

In your letter of November 9, 2011, you asked for a response to the following question:

From Chairman Whitfield:

1. **Following up on the litigation-related questions from Majority and Minority Members at the Oct. 25 hearing, please identify all lawsuits filed by the National Stone, Sand & Gravel Association (NSSGA) pursuant to the Clean Air Act (42 (U.S.C. 7401 et seq.) against the EPA during the last 5 years, and the amount, if any, NSSGA was reimbursed in legal fees or other costs or expenses under statutory cost or fee provisions.**

Answer:

NSSGA has filed no lawsuits under the Clean Air Act against EPA during the past 5 years.

Thank you again for the opportunity to present the concerns of the aggregates industry regarding the over-regulation of rural dust.

Sincerely,

Jennifer Joy Wilson
President and CEO

1605 KING STREET ▪ ALEXANDRIA, VA 22314
703 525 8788 ▪ 800 342 1415 ▪ FAX 703 525 7782
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Kurt Blase
202 469 5141
kurt.blase@hklaw.com

November 15, 2011

The Honorable Ed Whitfield
Chairman
Subcommittee on Energy and Power
Committee on Energy and Commerce
U.S. House of Representatives
2125 Rayburn House Office Building
Washington, D.C. 20515-6115

Dear Chairman Whitfield:

This letter responds to your November 9, 2011 letter to me posing additional questions for the record concerning my appearance as a witness before the Subcommittee at the October 25, 2011 hearing on the Farm Dust Regulation Prevention Act of 2011. My replies are as follows:

The Honorable Ed Whitfield

1. Following up on the litigation-related questions raised by both Majority and Minority Members at the Oct. 25 hearing, please identify all lawsuits filed by the Coarse Particulate Matter Coalition pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.) against the EPA during the last 5 years, and for each such lawsuit state whether the Coarse Particulate Coalition prevailed in the litigation, and the amount, if any, the Coarse Particulate Matter Coalition was reimbursed in legal fees or other costs or expenses under statutory cost or fee provisions.

Answer

The Coalition has filed no lawsuits against EPA in the past 15 years. In 2007, the Coalition intervened in support of EPA in litigation filed by the American Lung Association against the coarse particulate matter standard adopted by EPA in 2006. The Coalition did not receive any legal fees or other costs or expenses under statutory cost or fee provisions in connection with the intervention.

The Honorable Bobby L. Rush

1. Could you submit for the record the fee or amount you are being paid to represent the Coarse Particulate Matter Coalition?

Answer

Coalition members pay annual dues that vary by member. The dues cover all coalition activities related to EPA's review of the coarse PM standard. The total dues owed collectively by coalition members for activities in 2011 are $75,500.

Sincerely,

/s/ Kurt E.Blase

Kurt E. Blase

NRDC
THE EARTH'S BEST DEFENSE

NATURAL RESOURCES DEFENSE COUNCIL

November 28, 2011

Honorable Ed Whitfield
Chairman, Subcommittee on Energy and Power
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515-6115

Dear Chairman Whitfield and Ranking Member Rush:

Enclosed are answers to the questions submitted by members of the Subcommittee on Energy and Power on November 9, 2011 following the hearing on H.R. 1633, the "Farm Dust Regulation Prevention Act of 2011," on October 25, 2011. If the Committee has any further questions, please do not hesitate to contact me or our Legislative Director, Scott Slesinger.

Sincerely,
John Walke
John D. Walke
Clean Air Director

www.nrdc.org
1152 15th Street, N.W. Suite 300
Washington, D.C. 20005
TEL 202 289-6868
FAX 202 289-1060
NEW YORK • SAN FRANCISCO • LOS ANGELES • CHICAGO • BEIJING

The Honorable Ed Whitfield

1. Following up on the litigation-related questions from Majority and Minority Members at the Oct. 25 hearing, please identify all lawsuits filed by the N[atural] Resources Defense Council (NRDC) pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.) against the EPA during the past 5 years, and for each lawsuit state whether NRDC prevailed in the litigation, and the amount, if any, NRDC was reimbursed in legal fees or other costs or expenses under statutory cost or fee provisions.

A table listing all lawsuits filed by the Natural Resources Defense Council pursuant to the Clean Air Act (42 U.S.C. 7402 et seq.) against the EPA during the past 5 years is attached. NRDC does not keep track of the sources of attorneys' fees it recovers in litigation (private parties vs. the government). In addition, with regard to fees received from the federal government, some attorneys' fees are paid out of the Judgment Fund, but others (as in cases governed by the Equal Access to Justice Act) may be paid from funds appropriated to the defendant agency. We have no reason to track this difference, and we do not.

Case Name	Description	Plaintiff	Defendant	Court	Year	Outcome
California v. EPA	Clean Air Act challenge to EPA's denial of a waiver for California's standards for greenhouse gas emissions from new cars and light trucks.	California (and 14 other states), NRDC (and other environmental organizations)	US Environmental Protection Agency	9th Cir.	2007	NRDC partially prevailed
NRDC v. EPA	Review final action taken by USEPA at 72 Fed. Reg. 24060 et seq (May 1, 2007) entitled "PSD", Nonattainment NSR, and Title V: Treatment of Certain Ethanol Production Facilities Under the 'Major Emitting Facility	NRDC	US Environmental Protection Agency	D.C. Cir. Ct. of Appeals	2007	Pending
Commonwealth of Pennsylvania, Department of Environmental Protection v. US Environmental Protection	Review of final action taken by USEPA at 72 red Reg 25138 (May 3, 2007) entitiled " National Air Emissions Standards for Hazardous Air Pollutants: Halogenated	NRDC	US Environmental Protection Agency	D.C. Cir. Ct. of Appeals	2007	Held in abeyance, remanded to agency
NRDC v. EPA (Exceptional Events)	Petition for review of final action taken by USEPA at 72 Fed. Reg. 13560 et seq (March 22, 2007), entitiled "Treatment of Data Influenced by	NRDC	US Environmental Protection Agency	D.C. Cir. Ct. of Appeals	2007	NRDC did not prevail
NRDC v. EPA	Review of final action taken (including promulgation of regulations) taken by respondent US EPA "Phase 2 of the final Rule to Implement the 8-Hour Ozone National Ambient Air Quality Standard - Notice of Reconsideratoin." (Challenge to Phase	NRDC	US Environmental Protection Agency	D.C. Cir. Ct. of Appeals	2007	NRDC partially prevailed
Association of Irritated Residents et al. v. EPA	Deadline suit against EPA to compel the agency to take action on the 2003 ozone plan for the South Coast	Association of Irritated Residents and NRDC	EPA, Stephen L. Johnson	U.S. District Court for the Northern District of California	2007	Settlement with conditions on EPA complying with the Act

NRDC et al. v. EPA	Suit against EPA for approval of interim emissions budgets for particulate matter for the South Coast Air Basin	NRDC, East Yard Communities for Environmental Justice, Coalition for a Safe Environment, and Endangered	US Environmental Protection Agency	9th Cir.	2007	Respondents prevailed and court denied petition
Sierra Club, NRDC and Environmental Defense v. EPA and S. Johnson, Administrator (PSD CO2 Exclusion)	Challenge to EPA's "interpretive rule" excluding utilities' CO2 emissions from regulation under the PSD program	NRDC, EDF, Sierra Club,	U.S. Environmental Protection Agency (EPA) and Stephen Johnson, Administrator	D.C. Cir. Ct. of Appeals	2008	Case consoildated with related cases, severed, held in abeyance
NRDC v. EPA (AMP-OHIO FOIA)	FOIA challenge to EPA's failure to release documents concerning the Clean Air Act permit of AMP-Ohio's proposed coal-fired power plant	NRDC	U.S. Environmental Protection Agency (EPA)	S.D.N.Y.	2008	NRDC prevailed
In re Desert Rock Energy Project	Petition for review of PSD permit for Desert Rock Energy Project, a proposed coal-fired power plant on Navajo lands in New Mexico	NRDC, Dine Care, San Juan Citizen's Alliance, Rocky Mountain Clean Air Action, Sierra Club, Environmental Defense Fund	U.S. Environmental Protection Agency, Region 9	EPA Environmental Appeals Board	2008	NRDC prevailed
NRDC v. EPA (Ozone standards)	Challenge to EPA rule revising ambient air quality standards for ozone	NRDC, Environmental Defense Fund, National Parks Conservation Association, American Lung Association, others	U.S. Environmental Protection Agency	D.C. Cir. Ct. of Appeals	2008	Pending
NRDC et al. v. South Coast Air Quality Management District	Suit against the South Coast Air Quality Management District related to its New Source Review Program	NRDC, Communities for a Better Environment, Coalition for a Safe Environment, and Endangered Habitats	SCAQMD	U.S. District Court for the Central District of California	2008	NRDC did not prevail
NRDC v. EPA *(consolodated with Association for Irritated Residenta et al. v. EPA)*	Suit against EPA over action on the 2003 ozone Plan for the South Coast Air Basin in California	NRDC	U.S. Environmental Protection Agency (EPA)	9th Cir.	2009	NRDC prevailed

Association of Irritated Residents et al. v. EPA (consoldated with NRDC v. EPA)	Petition for review of final agency action on the 2003 ozone plan for the South Coast Air Basin and the State Strategy	Association of Irritated Residents ||| Community Children"""s Advocates Against Pesticide Poisoning ||| El Comite Para El Bienestar de Earlimart ||| Natural Resources Defense	Environmental Protection Agency	9th Cir.	2009	NRDC prevailed, and Court is considering EPA's petition for panel rehearing
NRDC v. EPA (Fugitive Emissions)	Challenge to EPA Clean Air Act rulemaking to exclude fugitive emissions from coverage under the New Source Review modification provisions	NRDC	U.S. Environmental Protection Agency (EPA)	D.C. Cir. Ct. of Appeals	2009	Pending
NRDC and Sierra Club v. Lisa Jackson, Administrator, USEPA (WI SIP)	Challenge to EPA Clean Air Act rulemaking approving Wisconsin's New Source Review reform regulations	NRDC and Sierra Club	Lisa Jackson, in her official capacity as Administrator of the U.S. Environmental Protection Agency	US Court of Appeals 7th Circuit	2009	NRDC did not prevail
NRDC v. EPA (10-1358)	Challenge to EPA's failure to include greenhouse gases in emission standards for the Portland cement industry	Portland Cement Association	U.S. Environmental Protection Agency (EPA)	D.C. Cir.	2010	Argued, awaiting decision
NRDC v. EPA (Cement Kilns)	Challenge to aspects of EPA rulemaking on hazardous air pollutants for Portland cement industry and intervention in support of EPA in industry challenges on the rule	Portland Cement Association	Lisa Jackson, in her official capacity as Administrator of the U.S. Environmental Protection Agency (EPA) ||| U.S. Environmental Protection Agency (EPA)	D.C. Cir. Ct. of Appeals	2010	Argued, awaiting decision
NRDC v. EPA (PM Hotspot Conformity Rule)	Petition for review of recent particulate matter hotspot conformity rule amendments	NRDC, Sierra Club, East Yard Communities for Environmental	U.S. Environmental Protection Agency (EPA)	D.C. Cir. Ct. of Appeals	2010	NRDC did not prevail
NRDC et al. v. EPA	Deadline suit against EPA to compel the agency to take action on the 2007 ozone and particulate matter plan for the South Coast Air Basin	NRDC and Coalition for a Safe Environment	EPA, Lisa Jackson, Jared Blumenfeld	U.S. District Court for the Central District of California	2010	Settlement with conditions on EPA complying with the Act
NRDC v. EPA	Suit against EPA for guidance on section 185 of the Clean Air Act	NRDC	US Environmental Protection Agency	D.C. Cir. Ct. of Appeals	2010	NRDC prevailed and guidance vacated

NRDC v. EPA (South Coast Air Basin Ozone Standard Deadline)	Deadline suit against EPA to compel the agency to make a finding of nonattainment of the 1-hour ozone standard for the South Coast Air	Coalition for a Safe Environment ||| NRDC ||| Physicians for Social Responsibility	U.S. Environmental Protection Agency (EPA)	U.S. District Court for the Central District of California	2011	Pending
NRDC v. EPA	FOIA challenge to EPA's failure to release documents and redaction of other documents regarding two pilot tests of the Alternative Asbestos Control Method (AACM)	NRDC	US Environmental Protection Agency	US District Court for the Southern District of New York	2011	NRDC prevailed
NRDC v. EPA	EPA's three-year exemption of facilities from counting biogenic CO2 emissions for PSD purposes.	NRDC	US Environmental Protection Agency	D.C. Cir. Ct. of Appeals	2011	Pending